

SETTING SAIL FOR ZERO



FELIPE FERRARI

May 12th, 2022



WWW.MUSIC-H2020.EU

#MUSIC_H2020



INTERNATIONAL SHIPPING GOALS

CHALLENGE

2030

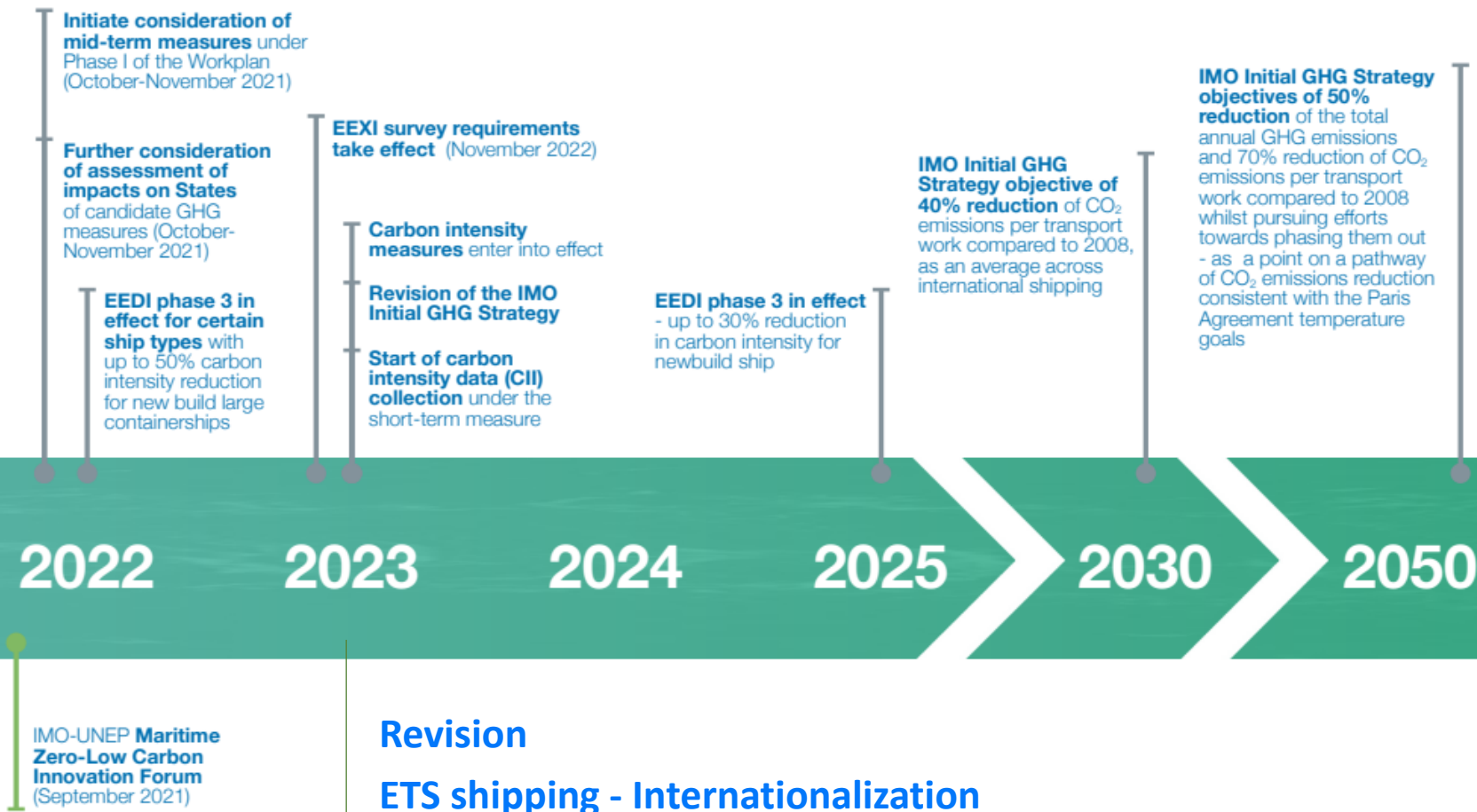
40% Reduction

2050

50% GHG reduction
70% CO₂ reduction



GHG



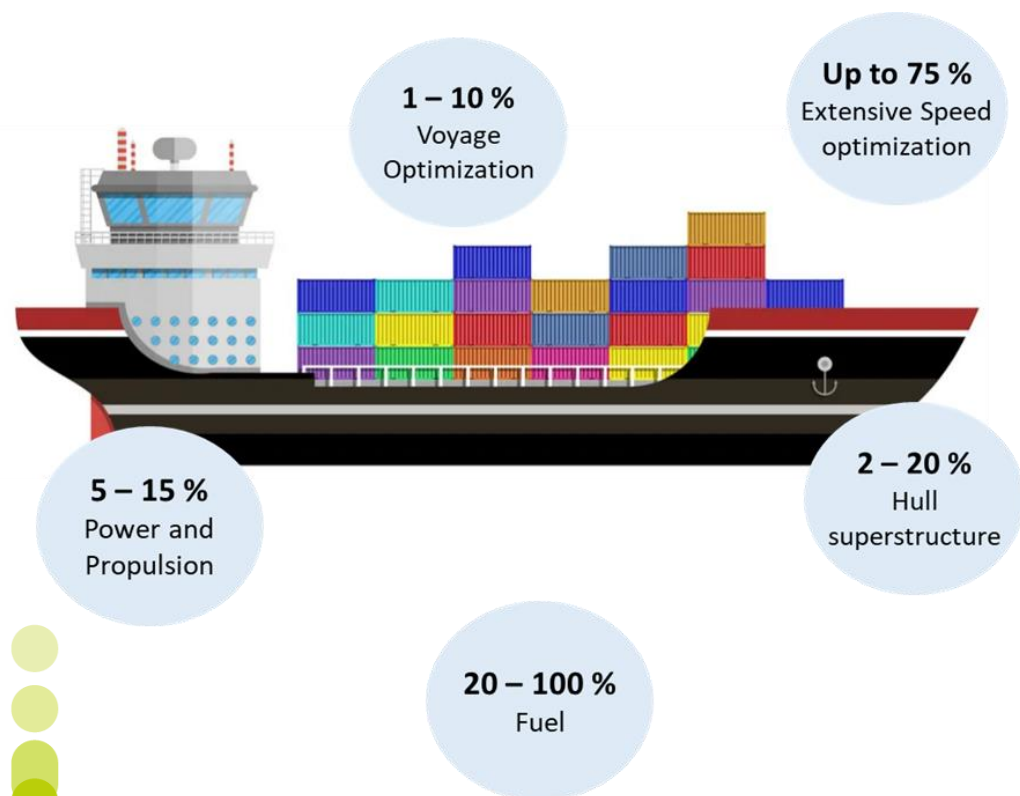
GHG MITIGATION STRATEGIES

2050

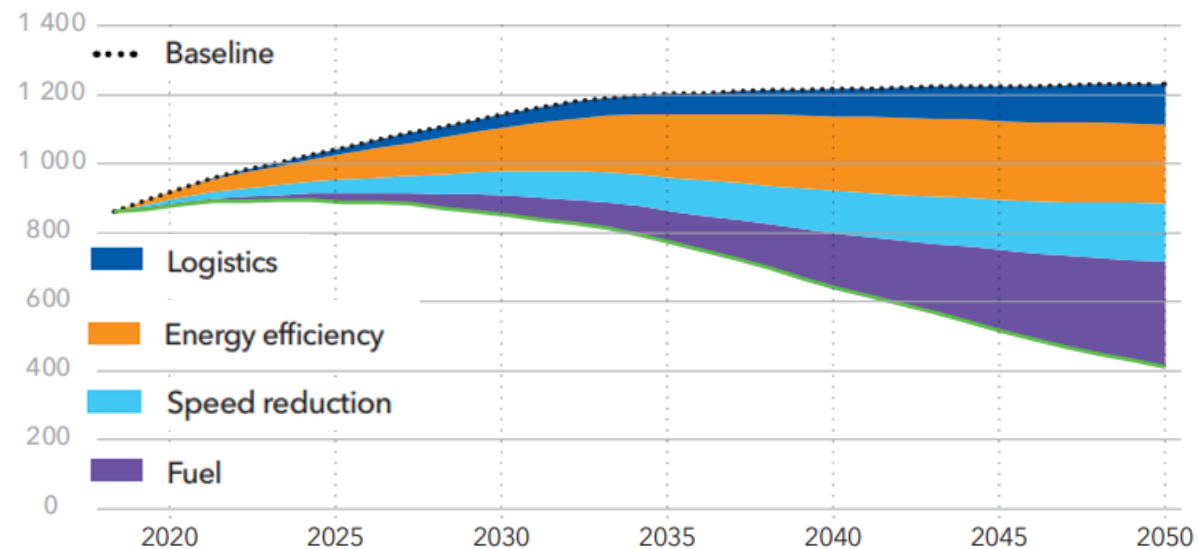
Transport work increase **40-100%**

2020

Business as usual **90-130%** vs. 2008



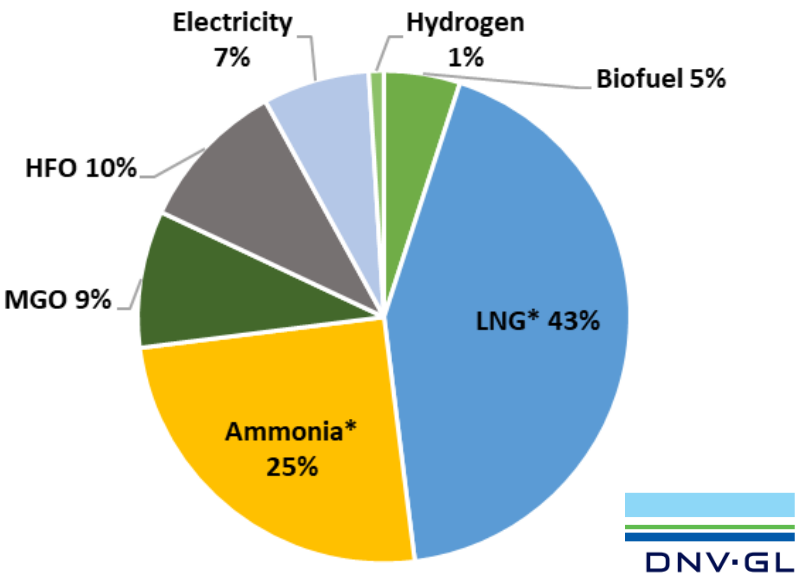
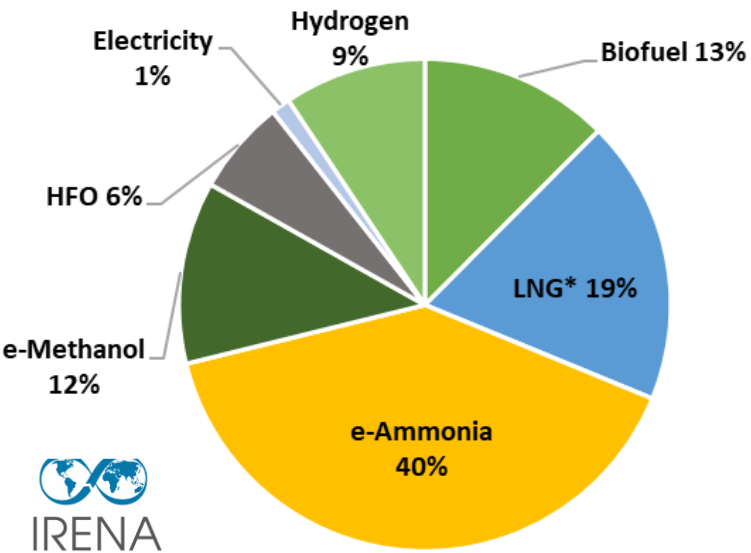
Units: Megatonnes of carbon dioxide (MtCO₂)



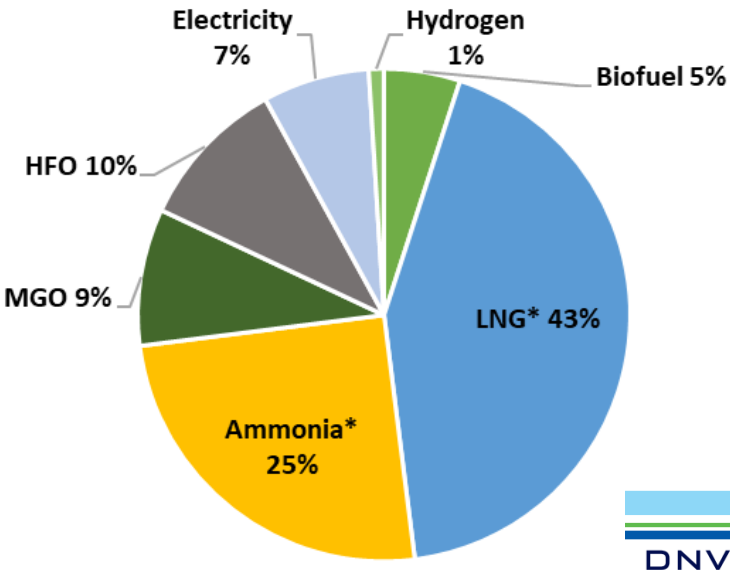
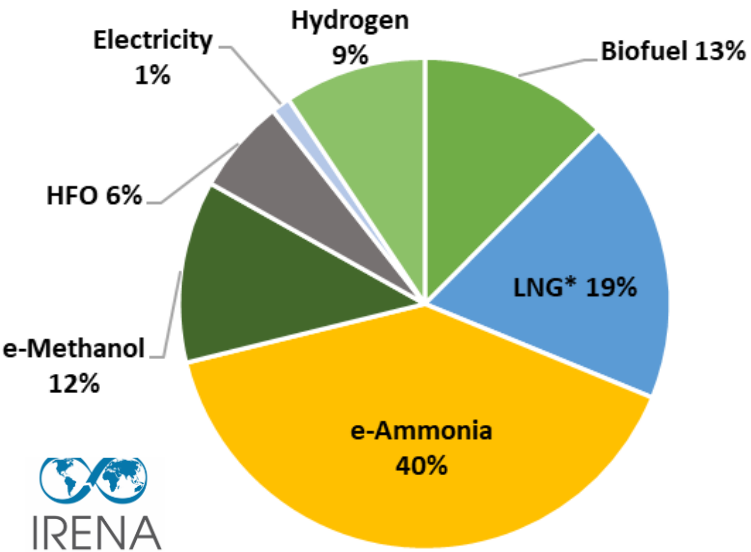
Source: IMO/ DNV -GL

FUELS: HOW TO CHOOSE?

2050

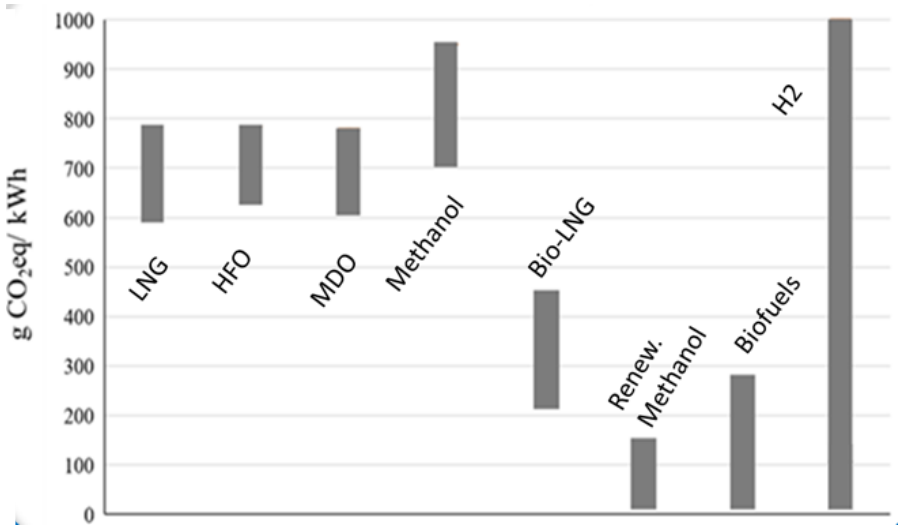


FUELS: HOW TO CHOOSE?



2050

GHG



Source: Balcombe 2018

OUR APPROACH

IMMEDIATE SOLUTION FOR SECTORS IN WHICH OPTIONS TO DECARBONIZE ARE LIMITED

- **Five key questions:**

1. Is it sustainable?

2. Does it work?

3. Is it affordable?

4. Is it available?

5. Is it scalable?



CONCEPT DEVELOPMENT



PRODUCT (CO)-
DEVELOPMENT



TECHNOLOGY
INTRODUCTION



MARKET DEVELOPMENT



LOBBY & LEGISLATION



CONNECTING THE
LIKEMINDED

Accelerating the energy transition by offering truly impactful low carbon solutions...



... by co-developing and commercialising truly sustainable alternatives for fossil fuels

GoodFuels develops and offers renewable fuels for heavy transport owners

Renewable solutions / alternatives



... by empowering cargo owners to switch to sustainable fuel and together change industry

GoodShipping offers a fuel switch impact service for cargo owners

Decarbonisation service / carbon insetting

OUR SUSTAINABILITY PRINCIPLES

WASTE AND RESIDUE BASED ONLY

NO COMPETITION WITH FOOD

NO DIRECT OR INDIRECT LAND USE CHANGE

NO DEFORESTATION OR BIODIVERSITY LOSS

NO HIGHER QUALITY APPLICATION POSSIBLE

MINIMUM OF 75% CO₂-REDUCTION

NO NEGATIVE SOCIAL OR LEGAL IMPACTS



**ANNE MARIT
POST-MELBYE**
Head of industry policy
Miljøstiftelsen ZERO



**MARTIN
JUNG NGER**
Professor of
bio-based economy
Utrecht University



**PATRICIA
OSSEWEIJER**
Professor of sustainability
TU Delft

Certification & partners



HOW IT STARTED

FIRST BIOFUEL BLEND BACK IN 2015

- **Boskalis**
- **Wärtsilä 4-stroke**
- Blend: 30% bio – 70% fossil
- Type of biofuel: Hydrotreated Vegetable oil
- Fuel standard: EN590
- Feedstock: Used Cooking Oil
- Fuel system requirement: No

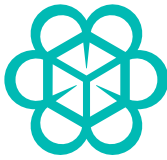


OUR PROGRESS

2015
GoodFuels founded, focusing on Marine, Road & Rail



2017
GoodShipping enters the market



OCTOBER 2017
Tony's Chocolony's first GoodShipping customer



DECEMBER 2017
Partnership DHL Global Forwarding



NOVEMBER 2018
World's first **Bio Fuel Oil** bunkering



2020
Extending experience with Bio Fuel Oil applications



NEAR, MEDIUM AND LONG-TERM SOLUTIONS

We work on bringing the best solutions to current business

- e-fuels
- Sustainable biomass
- alternative fuel carriers

2015

2017

2020

SEPTEMBER 2015
First marine biofuel bunkering with Boskalis and Wärtsilä



JUNE 2017
First inland waterway pilot with HEINEKEN



OCT/NOV 2017
Winner TEDx and Accenture Innovation Award



SEPTEMBER 2018
First blockchain bunkering with Samskip



MARCH 2019
World's first container vessel on Bio Fuel Oil



FEBRUARY 2022
GoodFuels Expansion Asia-Pacific Singapore



BIOFUEL REAL DROP-IN: WHAT THE DATA SHOW

Sustainable
Energy & Fuels



PAPER

[View Article Online](#)
[View Journal](#)

Towards decarbonization of shipping: direct emissions & life cycle impacts from a biofuel trial aboard an ocean-going dry bulk vessel†

Patrissia Maria Stathatou,^a Scott Bergeron,^b Christopher Fee,^b Paul Jeffrey,^b Michael Triantafyllou^c and Neil Gershenfeld^a



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Singapore → Las Palmas

GoodFuels' MDF – 100 (50%) / MGO (50%)

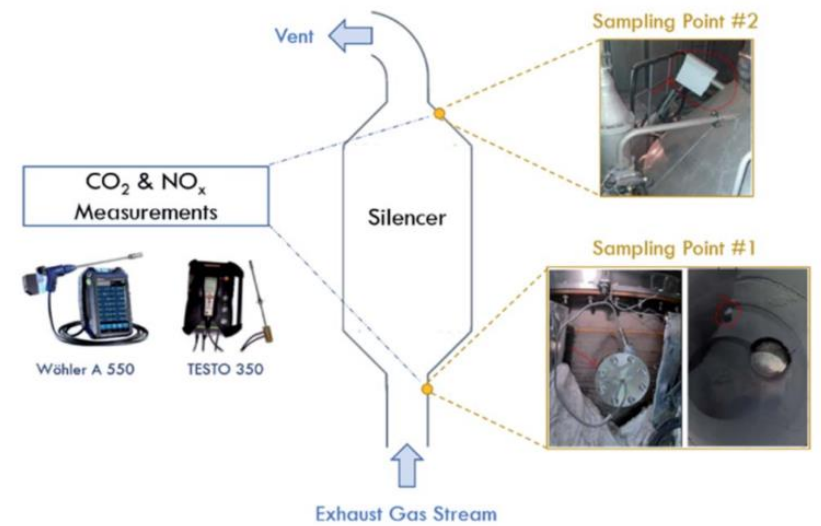


No adjustments in the system – MAN*

- dead slow ahead (mode 1)
 - slow ahead (mode 2)
 - half ahead (mode 3)
 - full ahead (mode 4)
 - full navigation ahead (mode 5)
- ISO 8178



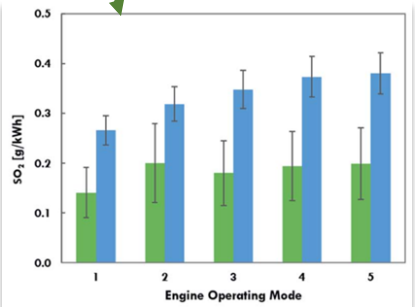
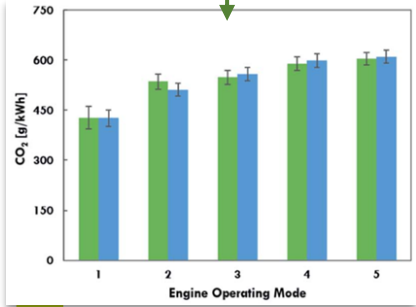
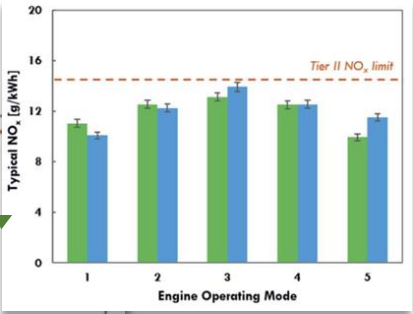
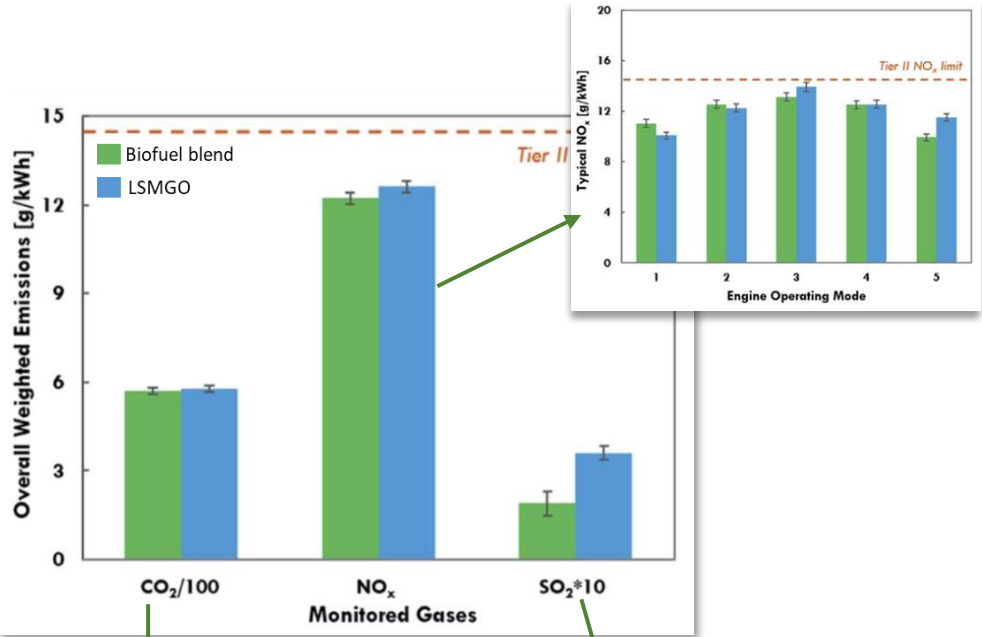
MAN B&W 6S60MEC8.5
two-stroke diesel – IMO Tier II



BIOFUEL REAL DROP-IN: WHAT THE DATA SHOW



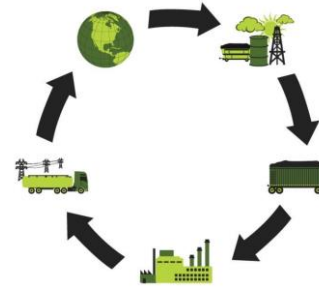
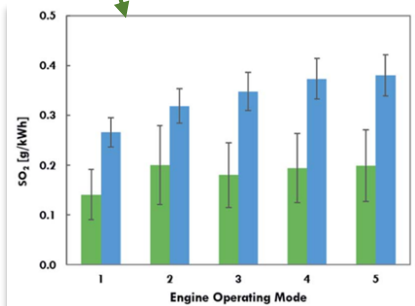
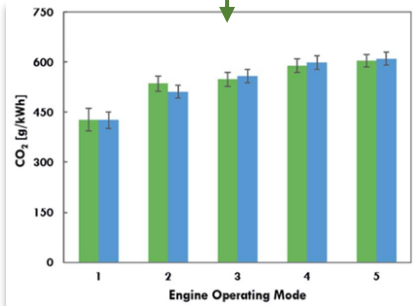
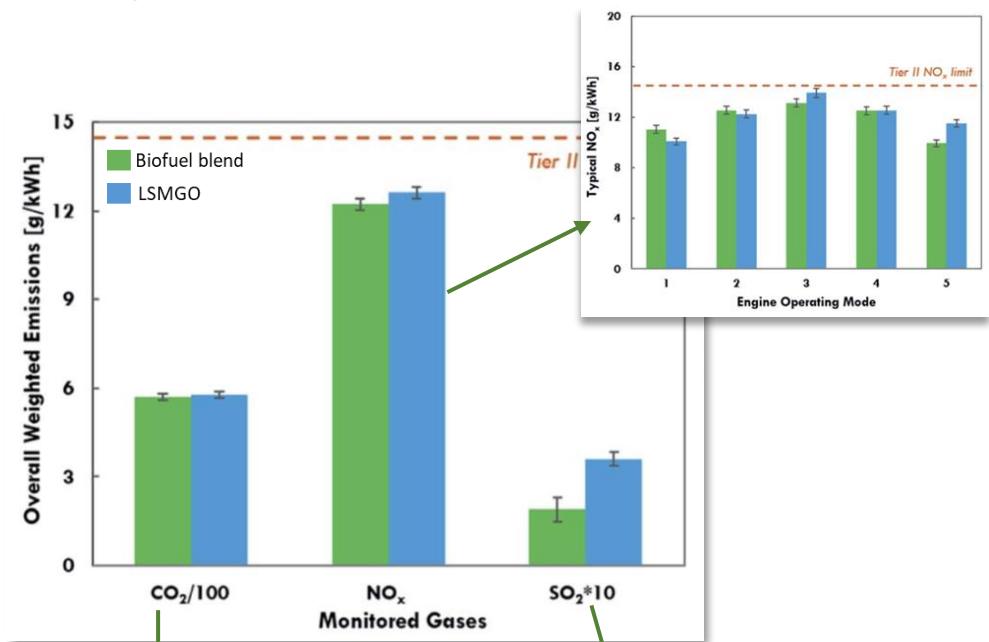
Pipe emissions



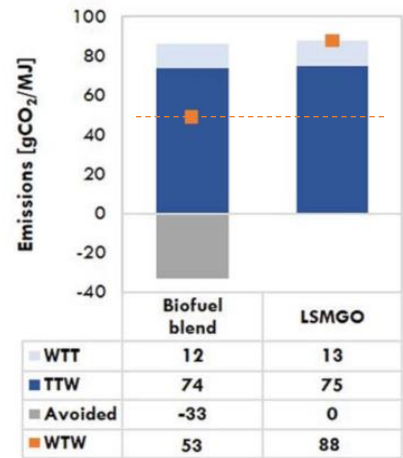
BIOFUEL REAL DROP-IN: WHAT THE DATA SHOW



Pipe emissions



Life cycle emissions

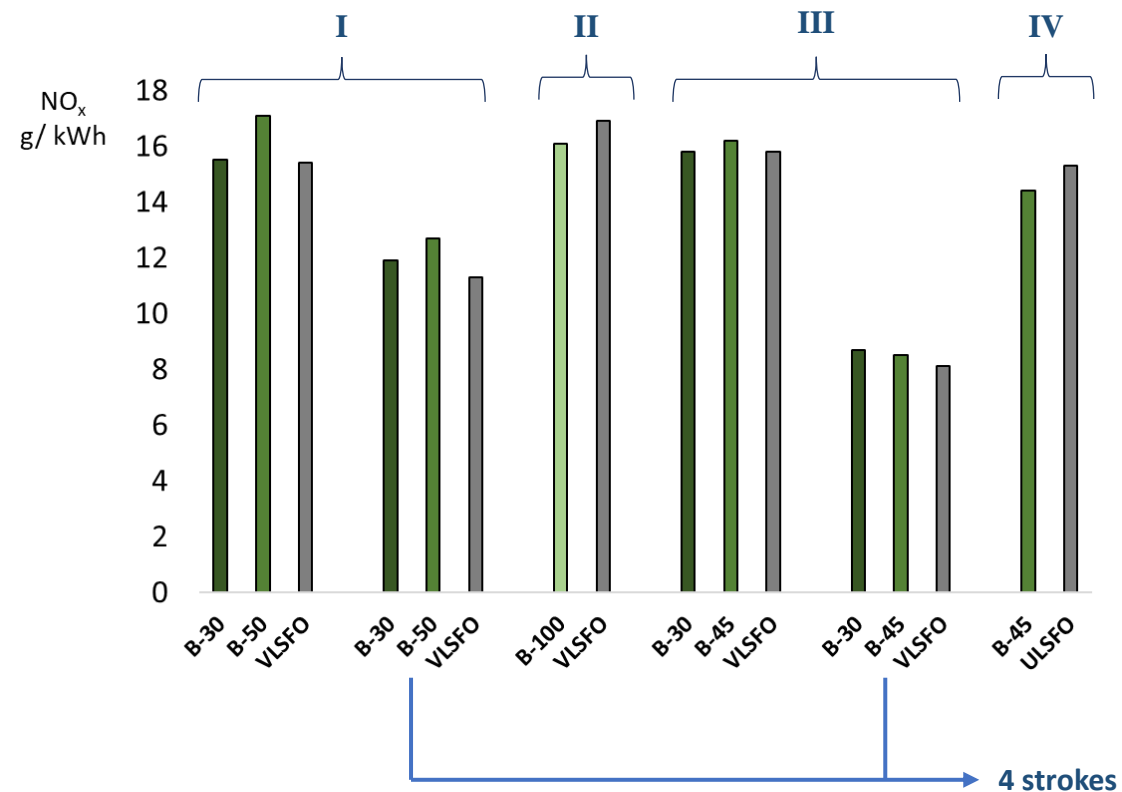


BIOFUEL REAL DROP-IN: WHAT THE DATA SHOW



TECHNICAL REPORT

NO_x from marine diesel engines using biofuels



1 In terms of magnitude, NO_x emissions were not significantly increased across the load range



2 In terms of range, most of the NO_x emission changes no more than that level of trial repeatability



3 Each combination of biofuel and engine has its own particular NO_x emission characteristics.



4 No specific engine adjustments; as they would be for the use of the petroleum derived fuels.

WHAT WE LEARNED ON POTENTIAL BARRIERS

**LACK OF TECHNICAL
STANDARDS**



**PRICE
BARRIER**

**NEED FOR CLEAR
SUSTAINABILITY CRITERIA**



**DANGER OF
TECHNOLOGY LOCK-
IN**

**SCOPE OF
REGULATIONS
EXCLUDING
INTERNATIONAL
SHIPPING**

LEGAL FRAMEWORK



CONTACT

LONG TERM INNOVATION

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11-5-2022



LET'S
MAKE
WAVES

