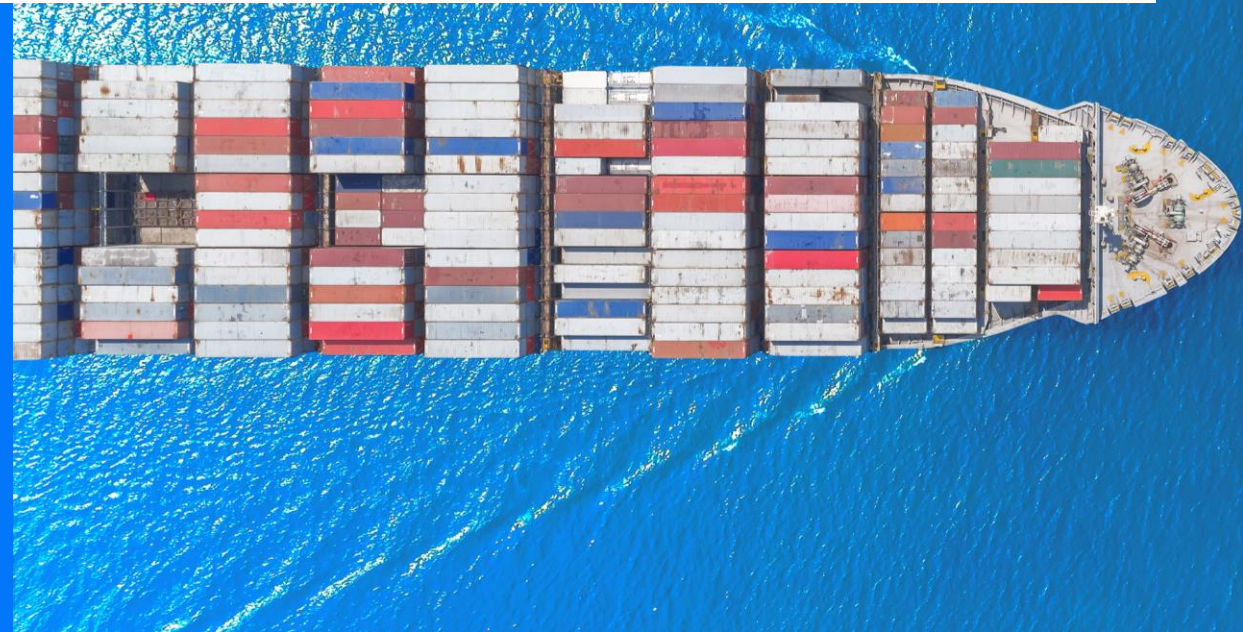
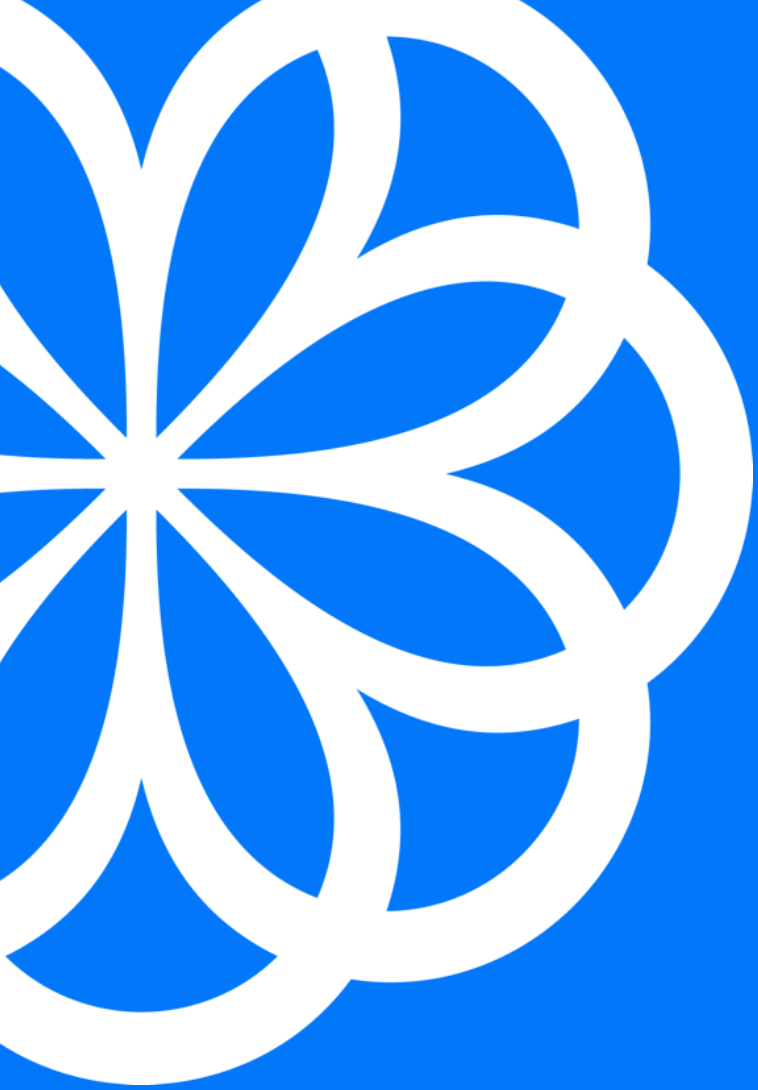


# SETTING SAIL FOR ZERO

## Decarbonizing global shipping with Sustainable Marine Fuels

Bernard van Haeringen  
Commercial Manager





# INTRODUCTION



# A ONE-STOP-SHOP FOR DECARBONISATION SOLUTIONS

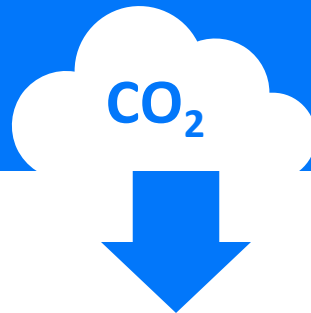
**FincoEnergies**



# GOODFUELS CLIENT PROPOSITION

## CHALLENGE

**Our clients face a growing demand for decarbonization in shipping (regulatory and voluntary) and are looking for the best solution for the foreseeable future**



## SOLUTION

**We develop sustainable biofuels and fuel blends in-house and together with our close partners. We test these fuels on their operational performance and when required adapt the fuel based on any potential specific customer requirement through for example upgrading or additives**

**We are the most experienced player in the market, sharing our technical expertise along the client's journey**

## RESULT



**Our clients have a real impact in the industry**

**Our clients are seen as sustainable frontrunners**

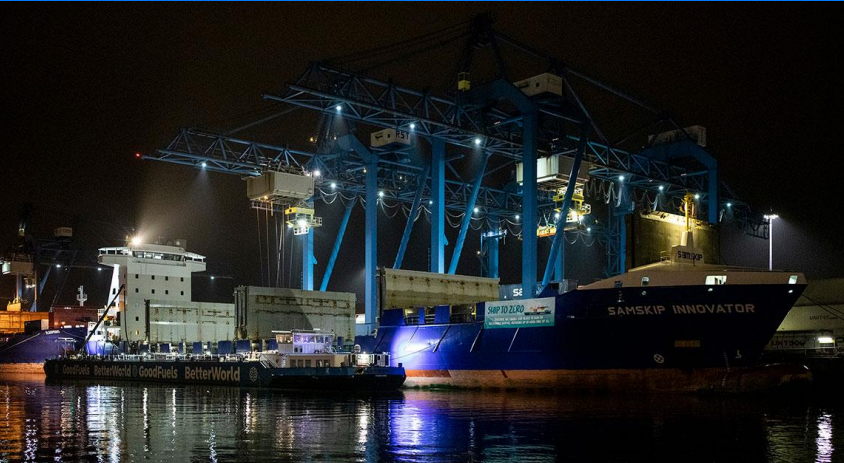
**Our clients share this with their clients which leads to having a competitive advantage**



# SUSTAINABLE, 'DROP IN' BIOFUELS

For direct decarbonisation using existing marine diesel engines

Container vessels



Tankers



Bulk Carriers and General Cargo



Car carriers

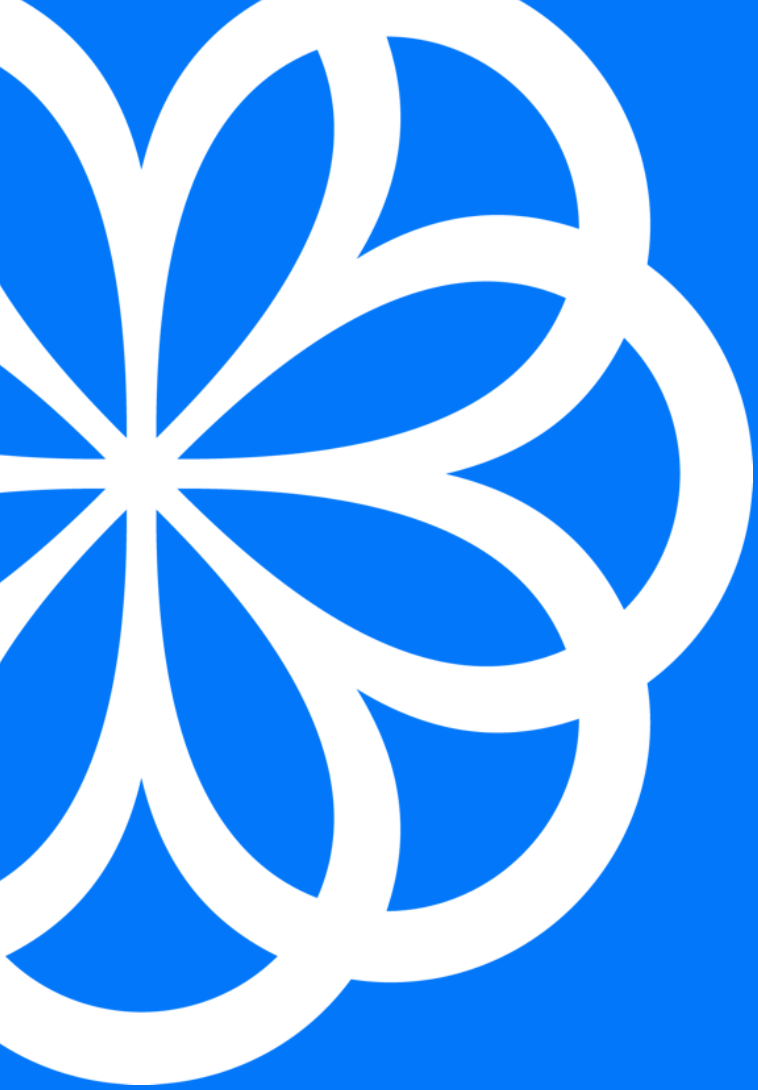


Cruise ships



Dredging and Near-shore

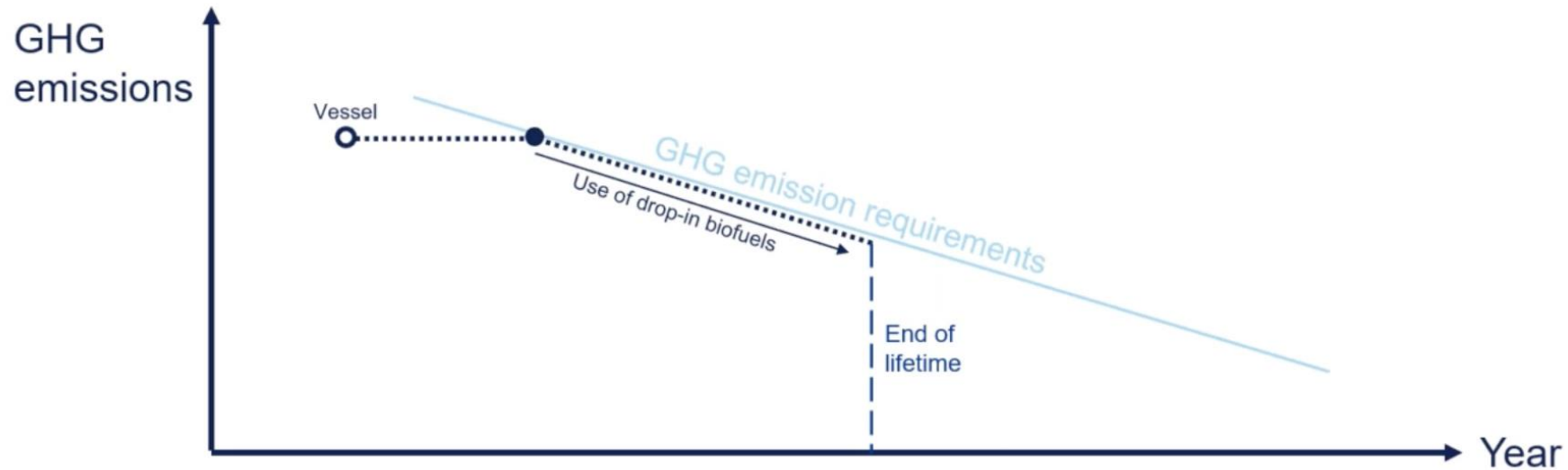




# EMISSIONS REGULATIONS



# BIOFUELS: THE IDEAL TRANSITION FUEL



## CII

Using biofuels, shipowners can significantly lower a vessel's CII rating. This practice ensures compliancy of older vessels up to their end of lifetime

## EU ETS

Shipowners can use biofuels to stay below the emissions threshold, preventing having to purchase extra allowance

## FUELEU MARITIME

Most sustainable biofuels can be certified as low-carbon fuels, eligible for use in maritime transport operating in the EU



# BIOFUELS UNDER DCS & CII

## MEPC 80

**MEPC 80 agreed on common approach to account for the use of biofuels under MARPOL Annex VI (DCS and CII).**

**CERTIFIED**

+

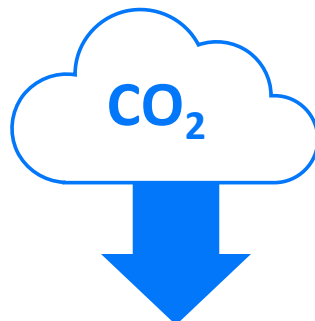
**By international certification scheme**

**And meeting its sustainability criteria**

**GHG REDUCTION = MINIMUM**

**> 65% GHG reduction**

**Compared to WtW emissions fossil MGO**



**ELIGIBLE FOR DCS & CII**

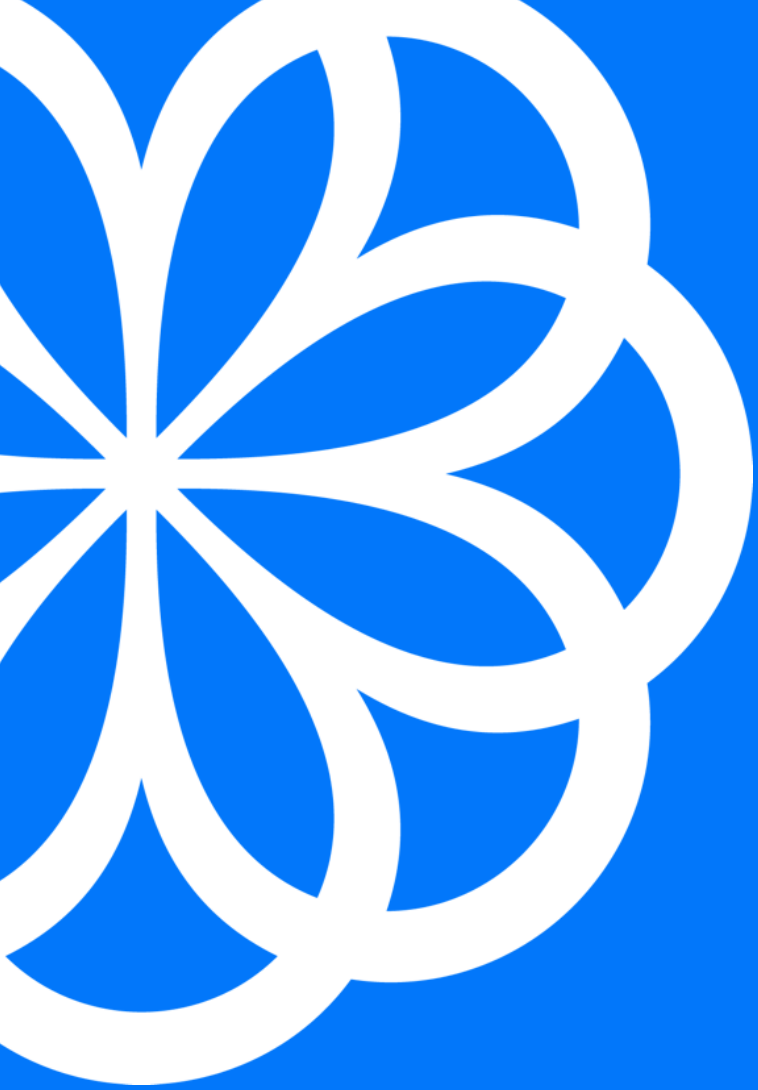
**CO2 conversion factor = WtW emissions factor**



- **80-90% GHG reduction**
- **Certified**
- **Sustainability criteria**
- **Sustainability Board**







# CHALLENGE: SAFETY



# LOW OPERATIONAL RISK

**HIGH FLASHPOINT  
LOW EXPLOSION RISK**

**BIO-  
DEGRADABLE**

**NOT A  
DANGEROUS GOOD  
NO DANGEROUS  
CHEMICALS**

**NOT A  
DANGEROUS  
GOOD**

**STORAGE  
REQUIREMENTS  
AND SHELF LIFE**

**TECHNICAL  
SUPPORT**

**FUEL, ENGINE &  
EMISSION  
TESTING**



# IBC CODE

## MPA SINGAPORE:

“The bunker supplier shall ensure that the flag Administration, and Class Society of the bunker craft approve or have no objection to the loading, carriage, and delivery of the biofuel onboard the bunker barge. In accordance with MSC-MEPC.2/Circ.17, the carriage requirements for biofuel<sup>2</sup> blends<sup>3</sup> are assigned based on their volumetric composition, as follows:

- **When the biofuel blend contains  $\geq 75\%$  of a MARPOL Annex I cargo, it is subject to MARPOL Annex I**
- **Biofuel blends containing  $> 1\%$  but  $< 75\%$  of a MARPOL Annex I cargo are subject to MARPOL Annex II, with the carriage requirements set out in chapter 17 of the IBC Code**
- **Biofuels blended with  $\leq 1\%$  of a MARPOL Annex I cargo are not considered as blends and are therefore to be shipped in accordance with MARPOL Annex II, under the appropriate product entry in the IBC Code”**

### SECTION 14: Transport information

Land transport (ADR/RID)	Inland waterway craft (ADN)	Sea transport (IMDG)	Air transport (ICAO-TI / IATA-DGR)
<b>14.1. UN number or ID number</b>			
No dangerous good in sense of these transport regulations.	No dangerous good in sense of these transport regulations.	No dangerous good in sense of these transport regulations.	No dangerous good in sense of these transport regulations.
<b>14.2. UN proper shipping name</b>			
No dangerous good in sense of these transport regulations.	No dangerous good in sense of these transport regulations.	No dangerous good in sense of these transport regulations.	No dangerous good in sense of these transport regulations.
<b>14.3. Transport hazard class(es)</b>			
not relevant	not relevant	not relevant	not relevant
<b>14.4. Packing group</b>			
not relevant	not relevant	not relevant	not relevant
<b>14.5. Environmental hazards</b>			
not relevant	not relevant	not relevant	not relevant
<b>14.6. Special precautions for user</b>			
not relevant	not relevant	not relevant	not relevant

### 14.7. Maritime transport in bulk according to IMO instruments

IBC-Code/2014: Pollution Category Y

#### Additional information:

Product name: Fatty acid methyl esters (m)

Hazards: S/P (safety and pollution)

Ship type: 2 (2.1.2.2)

Tank type: 2G (integral tank (4.1.2), gravity tank (4.1.3))

Tank vents: Cont. (controlled venting)

Tank environmental control: No

Electrical equipment: Temperature classes (i'): -

Electrical equipment: Apparatus group (i''): -

Electrical equipment: Flashpoint (i'''): Yes (flashpoint exceeding 60°C (10.1.6))

Gauging: R (restricted gauging (13.1.1.2))

Vapour detection: T (toxic vapours)

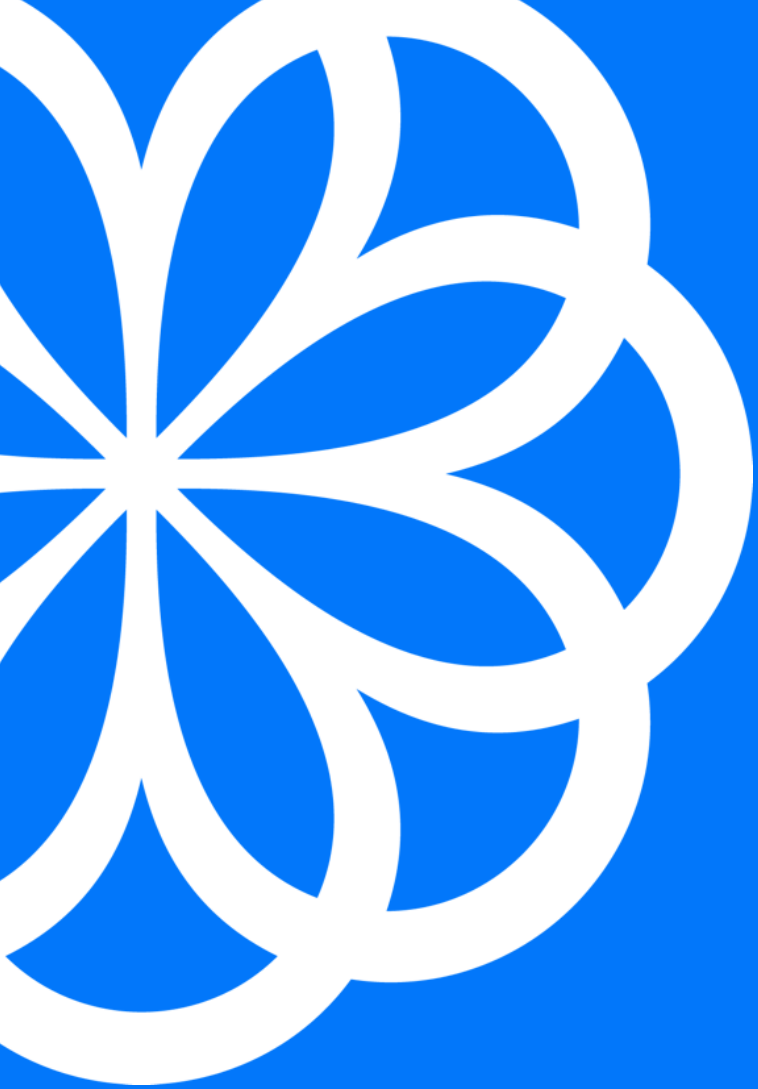
Fire protection: ABC (alcohol-resistant foam or multi-purpose foam, regular foam; encompasses all foams that are not of an alcohol-resistant type, including fluoro-protein and aqueous-film-forming foam (AFFF), water-spray

Emergency equipment: No (no special requirements under this Code)

Specific and operational requirements: 15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.9

a	c	d	e	f	g	h	i'	i''	i'''	j	k	l	n	o
Bio-fuel blends of Diesel/gas oil and FAME ( $> 25\%$ but $< 99\%$ by volume)	X	S/P	2	2G	Cont	No	-	-	Yes	C	T	ABC	No	15.12, 15.17, 15.19.6
Fatty acid methyl esters (m)	Y	S/P	2	2G	Cont	No	-	-	Yes	R	T	ABC	No	15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.9

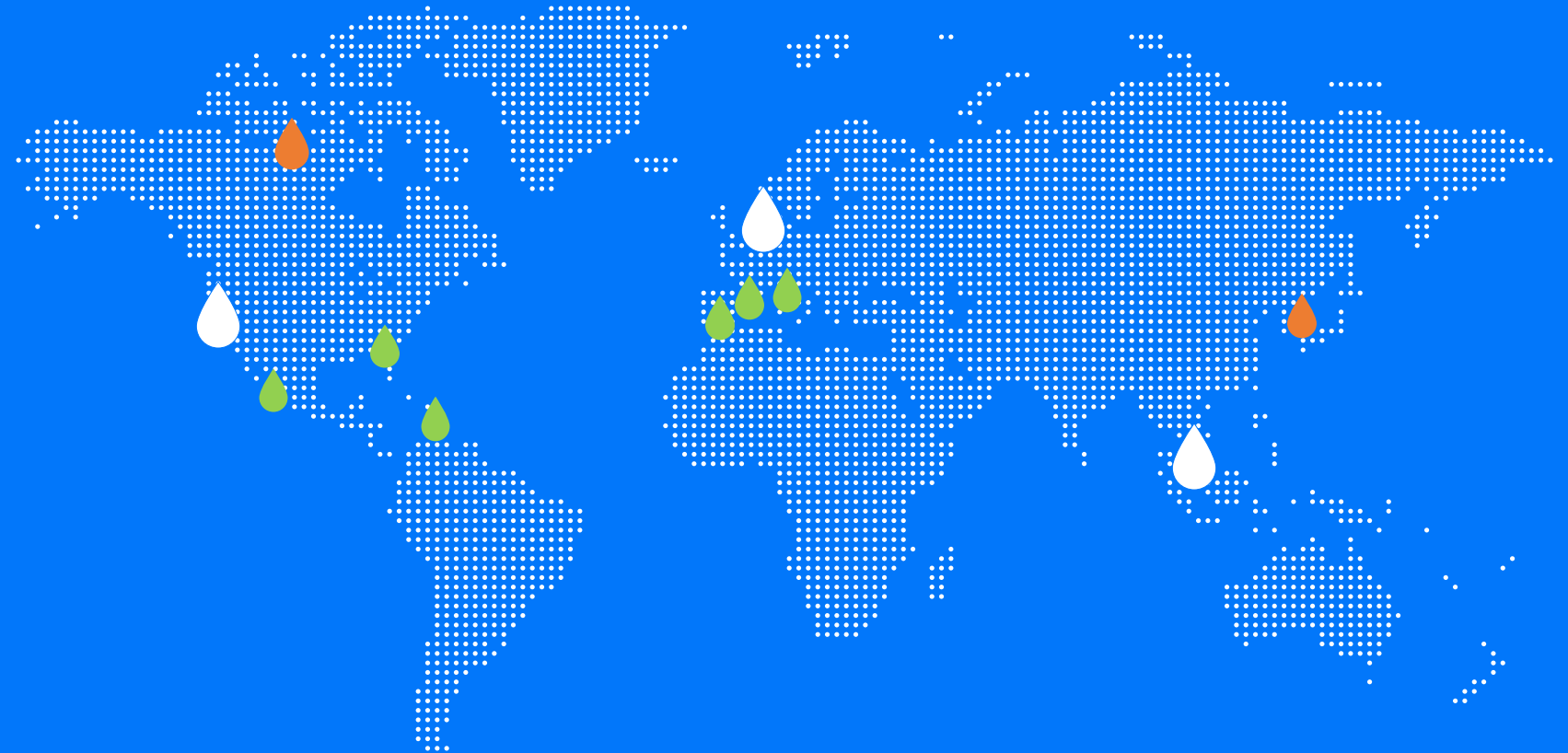







# CHALLENGE: AVAILABILITY



# SUSTAINABLE MARINE FUEL AVAILABILITY

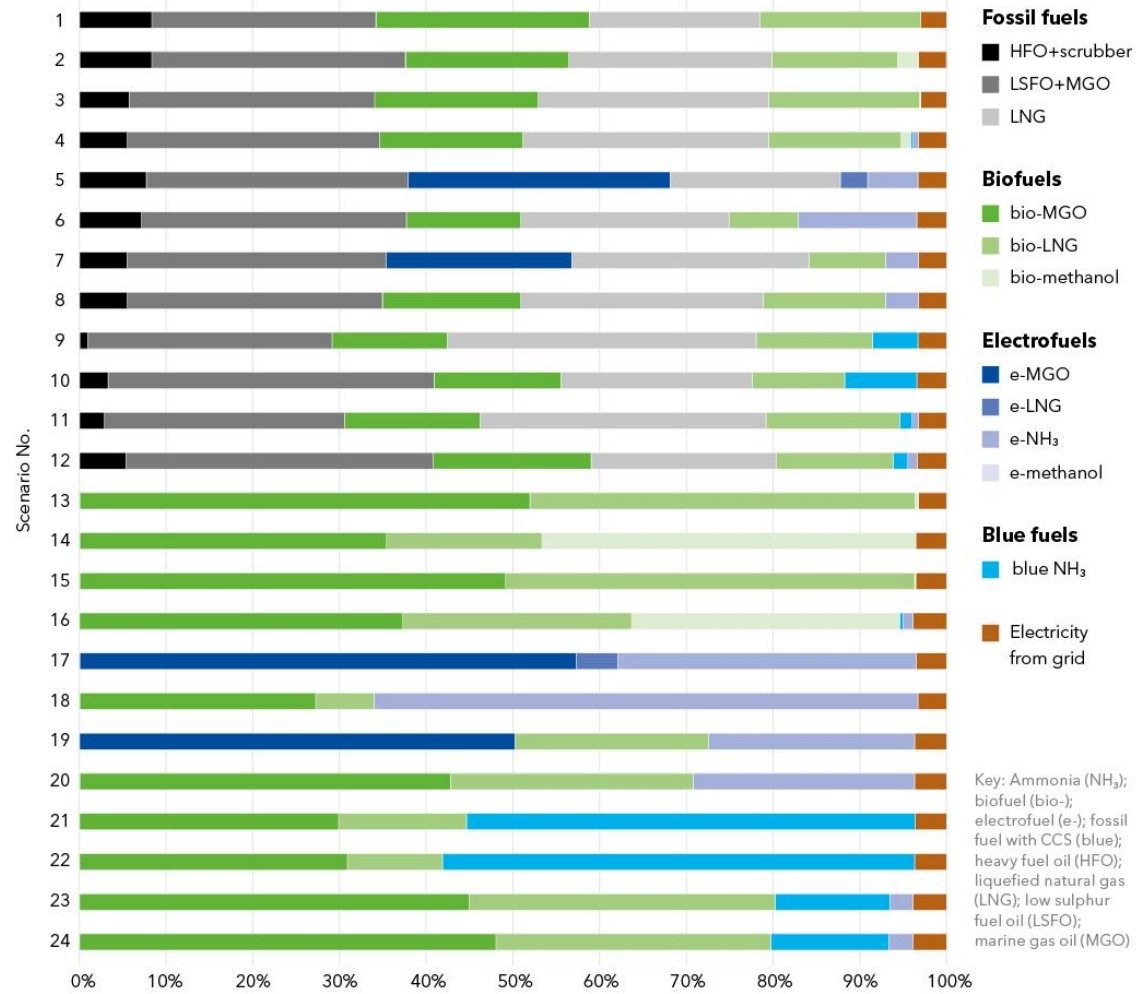


-  GoodFuels Operations Hubs
-  GoodFuels Supply Points
-  Future GoodFuels Operations Hubs



# LONG-TERM: NO SILVER BULLET

Energy mix in 2050, share of energy use per fuel type, all 24 scenarios



Source: DNV Maritime Forecast to 2050 - Energy Transition Outlook 2022

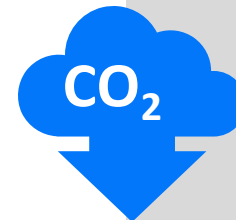
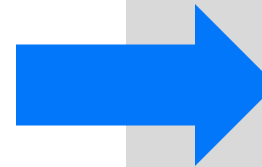


# THE EXPECTED MARINE BIOFUEL MARKET IN 2050

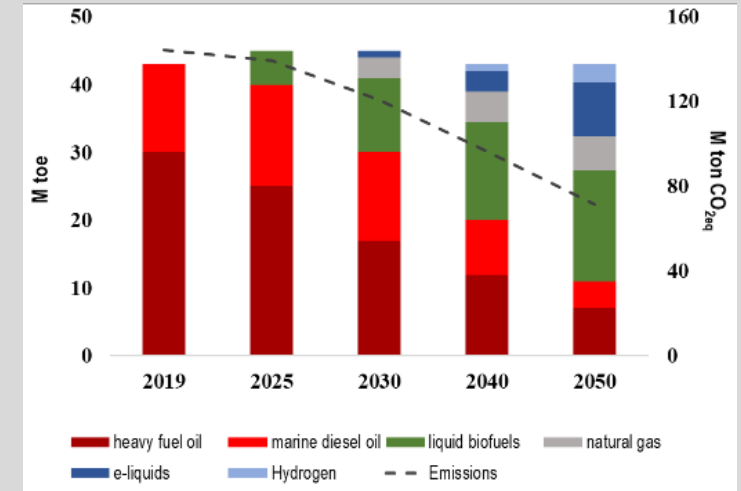
## BIOFUEL AVAILABILITY

	M ton available in 2050	Reference / remark
Crop	95	(Clean, 2019)
Oil wastes	1	(O'Malley et al, 2021)
Forestry residue	90	(Carraro et al, 2021)
Agricultural residues	89	(Carraro et al, 2021)
Urban residues	13	(Prussi & Panoutsou, 2022)
<b>Total feedstock</b>	<b>288</b>	
<b>Feedstock available for marine</b>	<b>72</b>	Assuming 1/4 allocated to marine
<b>Fuel available for marine</b>	<b>20.8</b>	Assuming a yield of 29%

Expected to have available **21** Mtoe of biofuel in 2050

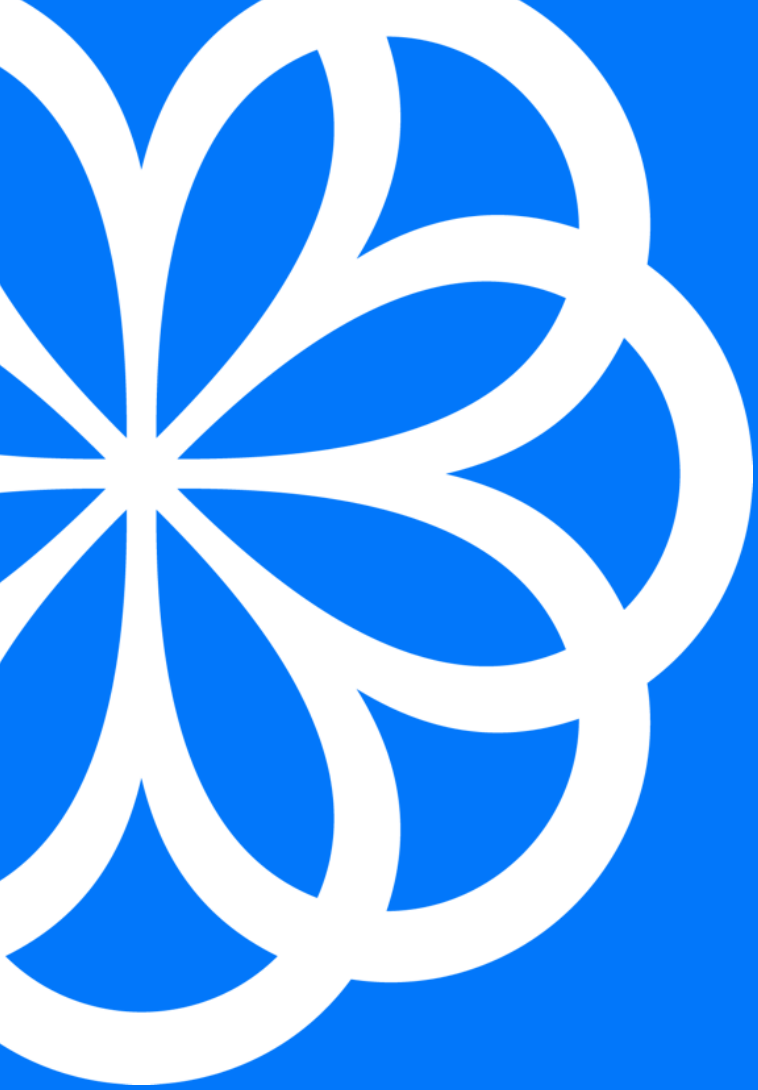


## 2050 ENERGY MIX



Expected to require **16** Mtoe of biofuel in 2050





# CHALLENGE: SUSTAINABILITY & TRANSPARANCY





# SUSTAINABILITY

## 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% CO<sub>2</sub>-reduction**
- No negative social or legal impacts**

## Certification & partners



**ANNE MARIT  
POST-MELBYE**

Head of industry policy  
Miljøstiftelsen ZERO

## Sustainability board



**MARTIN  
JUNGINGER**

Professor of  
bio-based economy  
Utrecht University



**PATRICIA  
OSSEWEIJER**

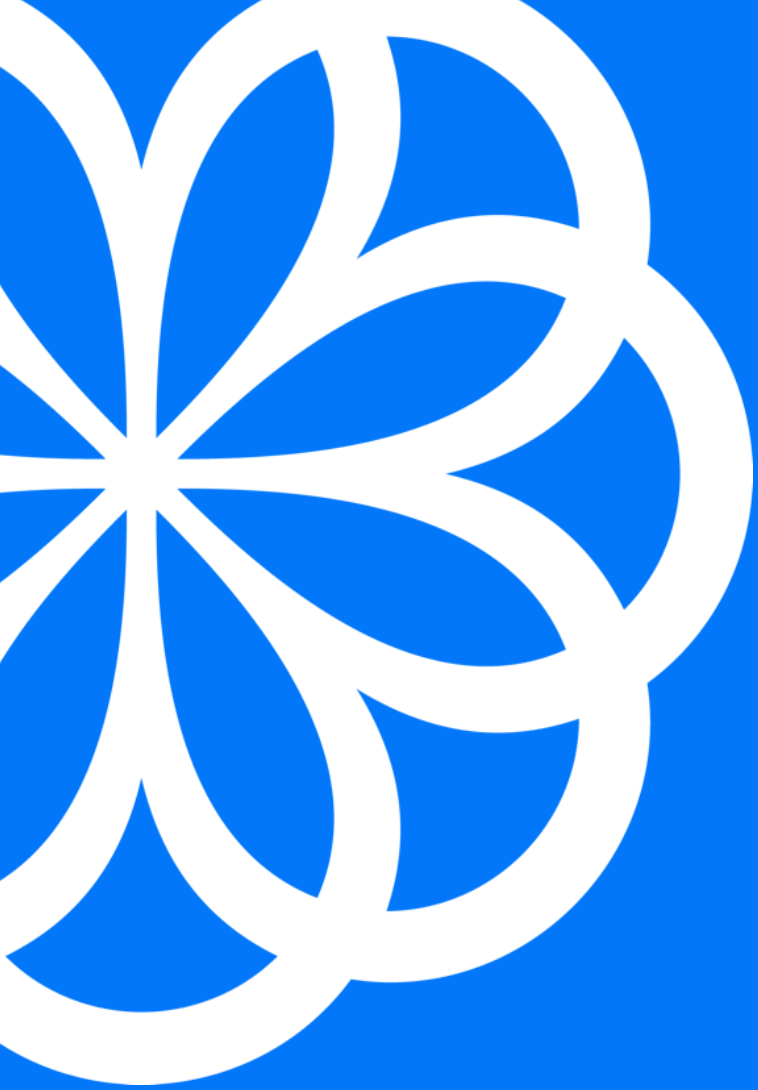
Professor of sustainability  
TU Delft



# FUEL TRACING: ASSURANCE OF SUSTAINABILITY AND TRANSPARENCY

**Digital technology and physical tracing will help to provide clients with the right sustainability and quality guarantees**





# TAKING CLIMATE ACTION



# DECARBONISE NOW

“

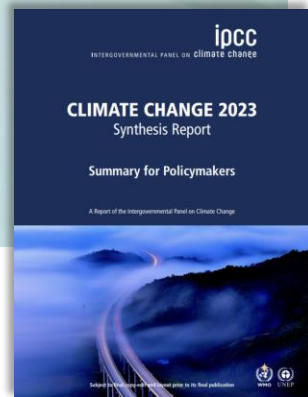
**Our world needs climate action on all fronts – everything, everywhere, all at once.**

”

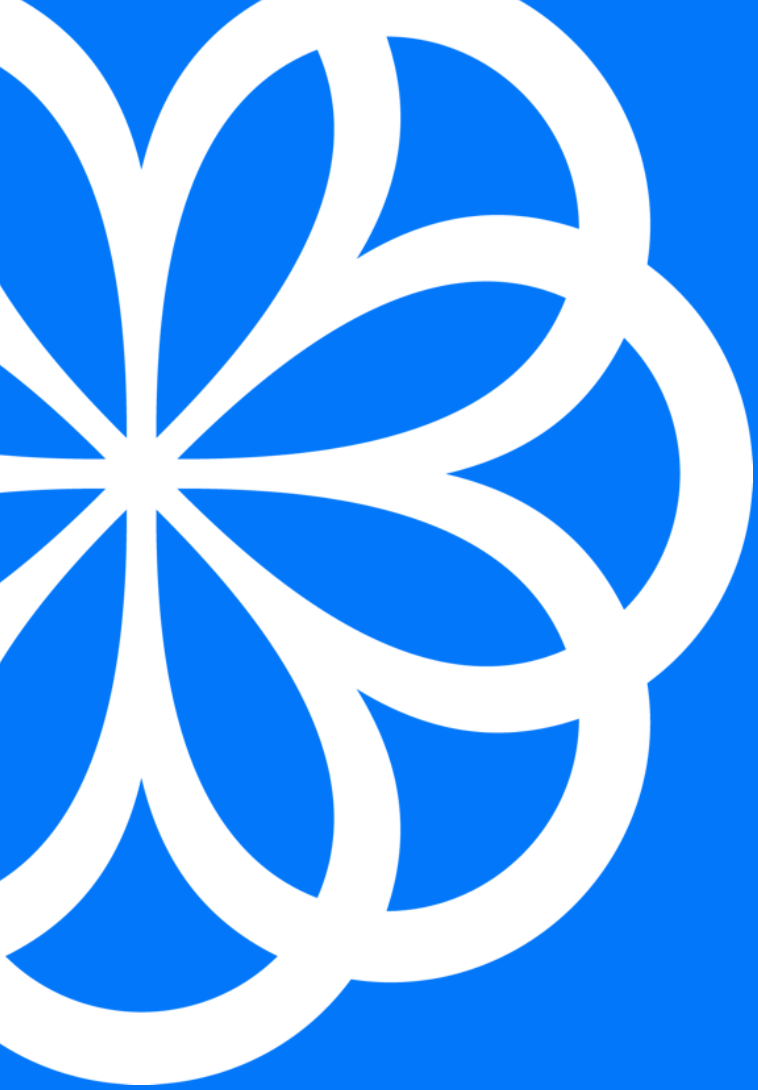
**— António Guterres  
Secretary General, United Nations**



- Taken from the opening speech during the release of **the IPCC AR6 Synthesis Report** on 20 March 2023







**THANKS,  
AND HAVE  
A GOOD DAY!**

