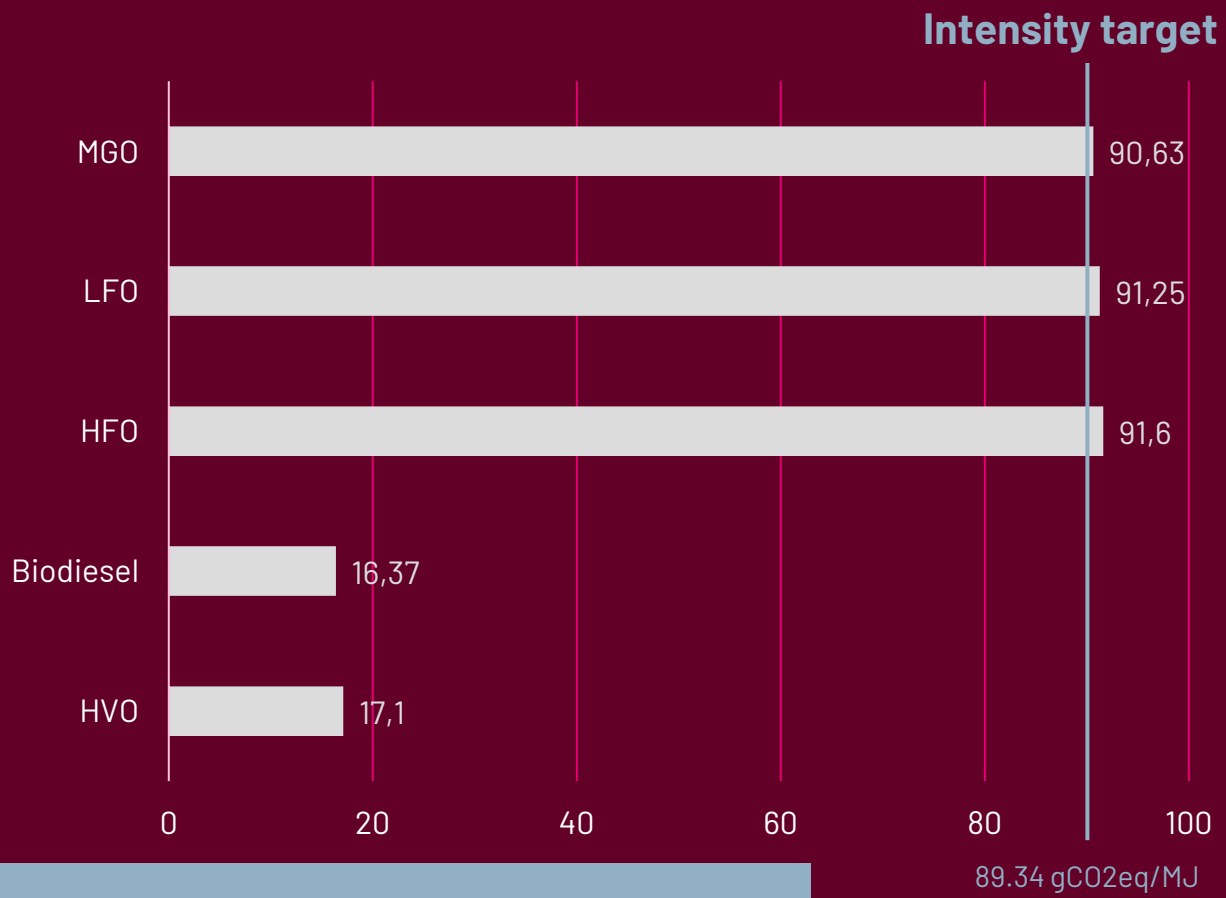
Dan-Bunkering
Ride the Next Wave

Calculations for Green House Gas Intensity

Lower GHG Intensity Fuels

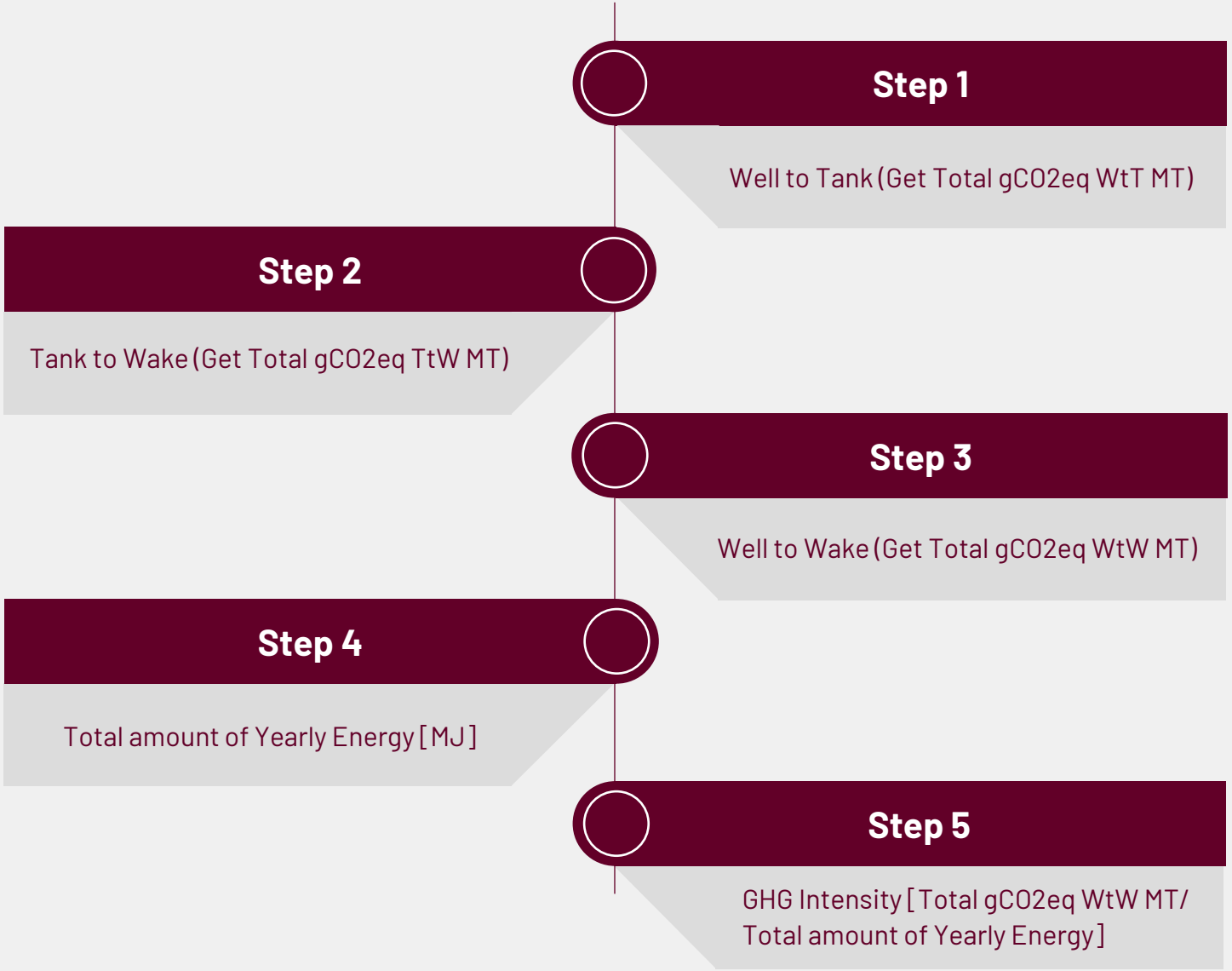
- **Burning only Fossil fuels will not meet this target**
  - MGO is 90.63 gCO2eq/MJ
  - LFO is 91.25 gCO2eq/MJ (RMA-RMD)
  - HFO is 91.60 gCO2eq/MJ (RME-RMK)

- **Lower GHG intense fuels in the mix reduces the overall GHG intensity.**
  - Biodiesel average is 16.37 gCO2eq/MJ (FAME)
  - HVO average is 17.10 gCO2eq/MJ
  - Bio-LNG, RNFBO Methanol, RNFBO Ammonia



The Fuel EU Maritime set specific GHG intensity targets (WtW) in 2025:
89.34gCO2eq/MJ (89.3368)

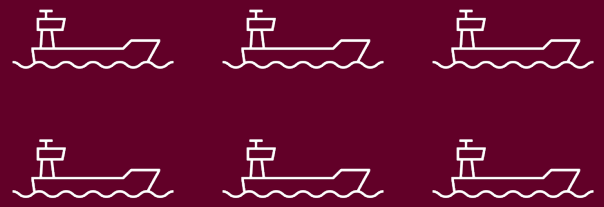
Calculation: step by step



Emission calculations

Scenario

The shipowner has shared their MRV data for the 2023 calendar year	Total
Total Fuel Consumption	60 000 MTS
Total CO2 emissions	192 360 MTS
Total CO2 emissions within a MS jurisdiction	115 416 MTS
Total CO2 emissoins to/from a MS jurisdiction	76 944 MTS
Total fuel consumption within a MS jurisdiction	36 000 MTS
Total fuel consumption to/from a MS jurisdiction	24 000 MTS



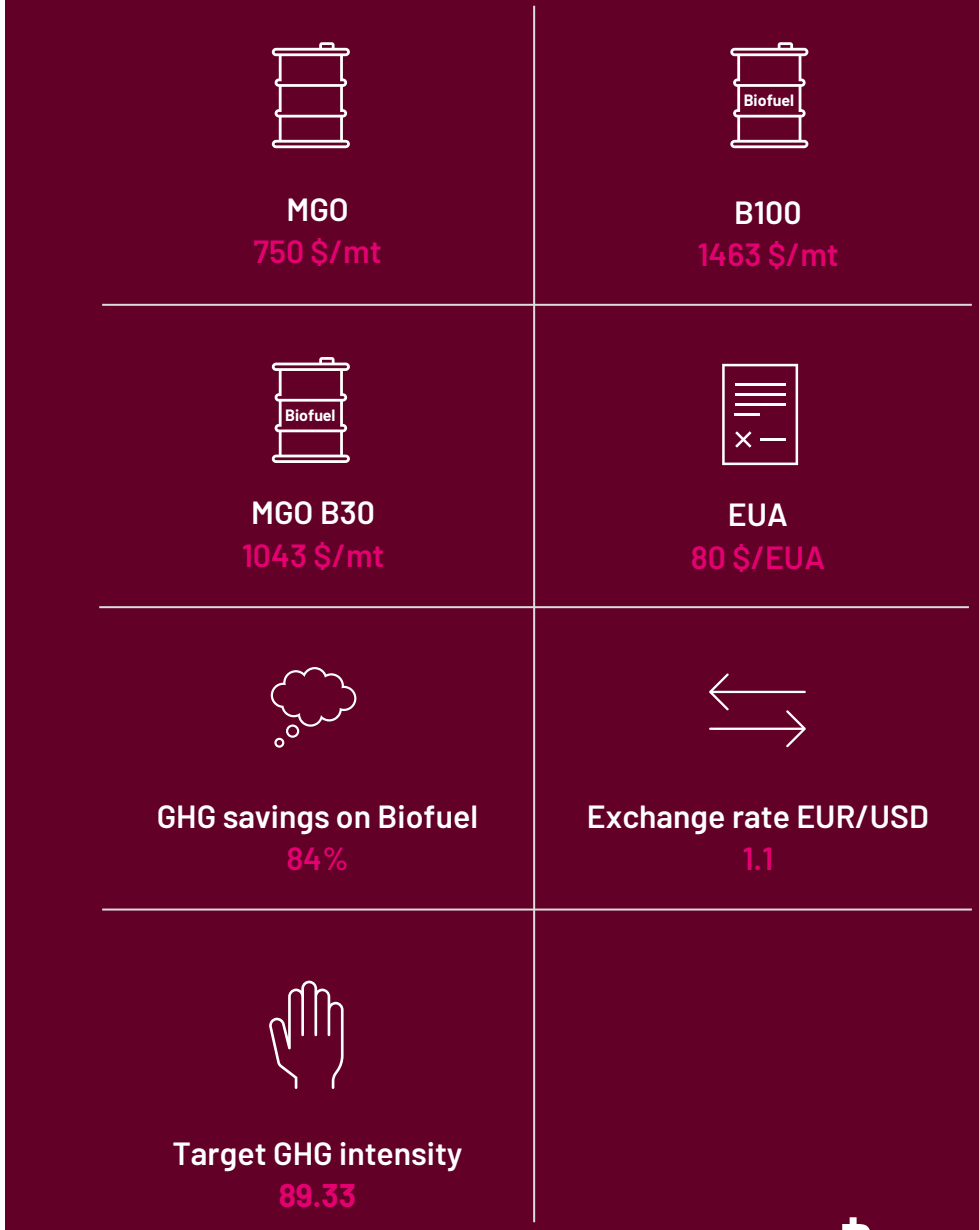
Scenario:

A shipowner has six vessels that trade in and out of the EU. All vessels burn MGO only on voyages into, out of, and in-between European ports.

Emission calculations

Scenario assumptions

- 2025 voyages will be the same as 2023 voyages.
- Only MGO was burned for these voyages.
- All biofuel is burned in between EU port calls.**
- EUA price and EUR/USD exchange rate remain constant.



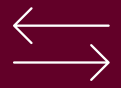
Inputs Required

2025 Fuel Consumption in and out of the EU

MGO: 24 000 MT

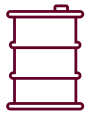
2025 Fuel Consumption in the EU

MGO: 36 000 MT



Exchange rate EUR/USD
1,1

EUA
80 $/EUA



Estimated Fuel Prices

Fuel Type	USD/MT
MGO	750
B100	1463
B30 MGO	1043

Current GHG Intensity (gCO2eq/MJ)	90,63
GHG Intensity target (gCO2eq/MJ)	89,33
GHG Savings of Biofuel (%)	84

Emission Calculations – Fuel Costs

BIOFUEL (B100)

2025 Fuel Consumption in and out of the EU	
Fuel Type	**MT**
MGO	24000.00
BIOFUEL (B100)	**0.00**

2025 Fuel Consumption in the EU	
Fuel Type	**MT**
MGO	35158.57
BIOFUEL (B100)	**971.06**

New GHG Intensity (gCO2eq/MJ)	89.33
Total fuel cost (USD)	45.790m
Total EUA cost (USD)	8.467m
Penalty cost (USD)	0.00
Total cost (USD)	54.256m

Emission Calculations – Fuel Costs

B30 MGO

2025 Fuel Consumption in and out of the EU	
Fuel Type	**MT**
MGO	24000.00
B30 MGO	**0.00**

2025 Fuel Consumption in the EU	
Fuel Type	**MT**
MGO	32944.26
B30 MGO	**3185.36**

New GHG Intensity (gCO2eq/MJ)	89.33
Total fuel cost (USD)	46.031m
Total EUA cost (USD)	8.467m
Penalty cost (USD)	0.00
Total cost (USD)	54.497m

Emission Calculations – Fuel Costs

MGO

2025 Fuel Consumption in and out of the EU	
Fuel Type	**MT**
MGO	24000.00

2025 Fuel Consumption in the EU	
Fuel Type	**MT**
MGO	36000.00

New GHG Intensity (gCO2eq/MJ)	90.63
Total fuel cost (USD)	45.000m
Total EUA cost (USD)	8.618m
Penalty cost (USD)	1.886m
Total cost (USD)	55.504m

Using Biofuels

B100 and B30

B100 Scenario

Required B100 Volume	917.06
Fossil fuel consumption inside EU	35 158.57
Price of Biofuel	1 463.00
Price of traditional fuel	750.00
Additional Fuel Cost	-710 586.28
- Saved Emission Allowances (USD)	151 066.98
- Fuel EU Penalty	1 885 797.10
Saving by using biofuel	**1 326 277.80**

B30 Scenario

Required B30 Volume	3 185.36
Fossil fuel consumption inside EU	32 944.26
Price of Biofuel	1 043.00
Price of traditional fuel	750
Additional Fuel Cost	-1 030 525.48
- Saved Emission Allowances (USD)	151 066.98
- Fuel EU Penalty	1 885 797.10
Saving by using biofuel	**1 006 338.60**