OCEANIX

Webinar

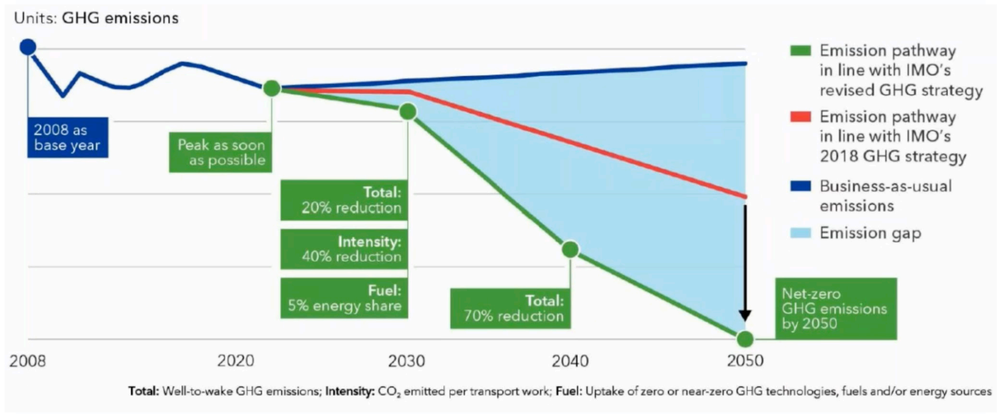
Navigating Regulatory Currents

Wind-Assisted Propulsion Systems in Maritime

Sandith Thandasherry, CEO Oceanix

Why?

Regulation



Operations

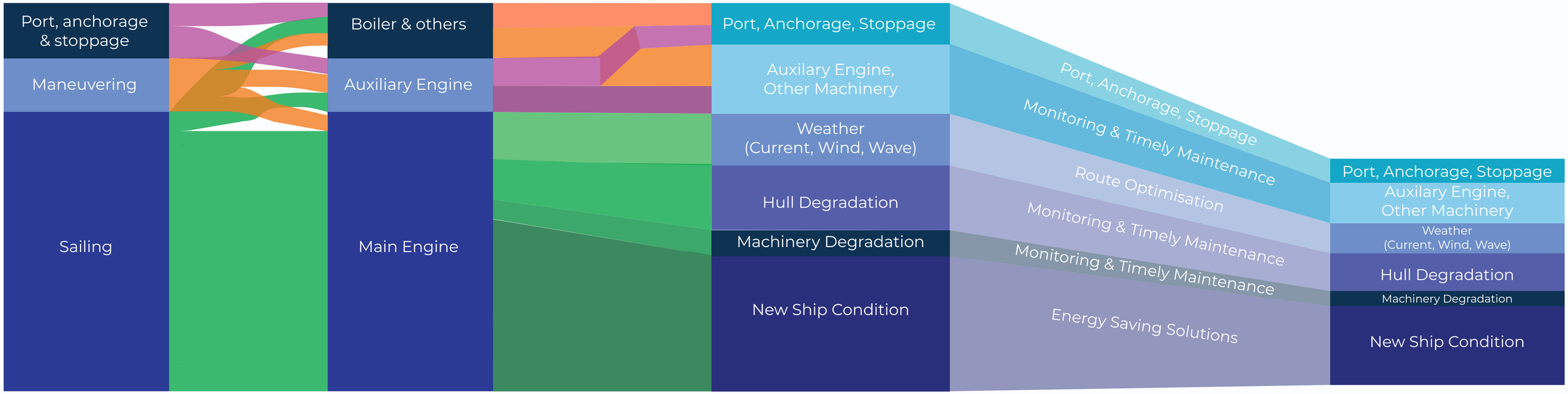
Emission

- CII, EEOI, EU-ETS...

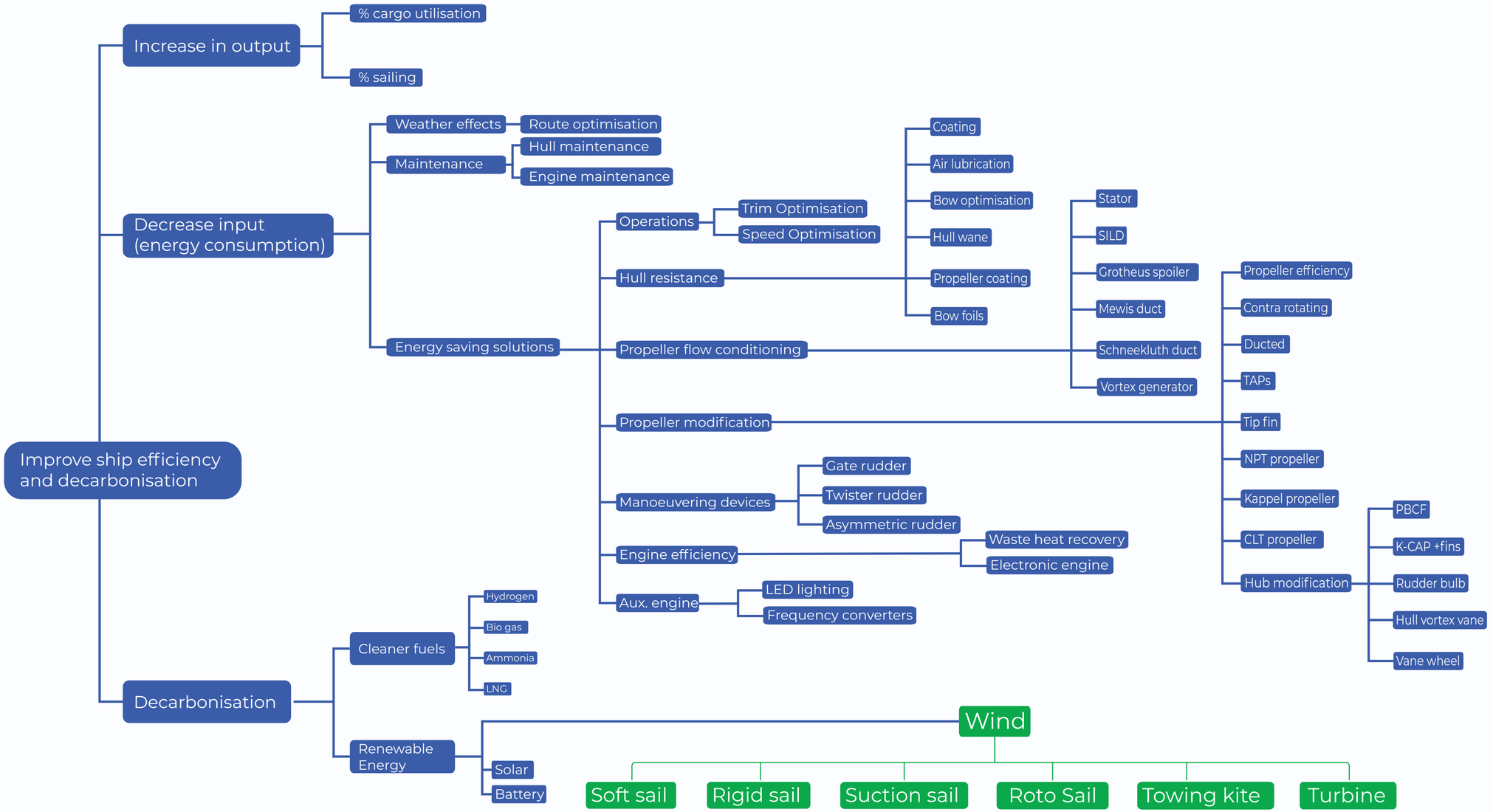
Cost

- Bunker Price

Emissions Breakdown



Decarbonisation Pathway



Technology

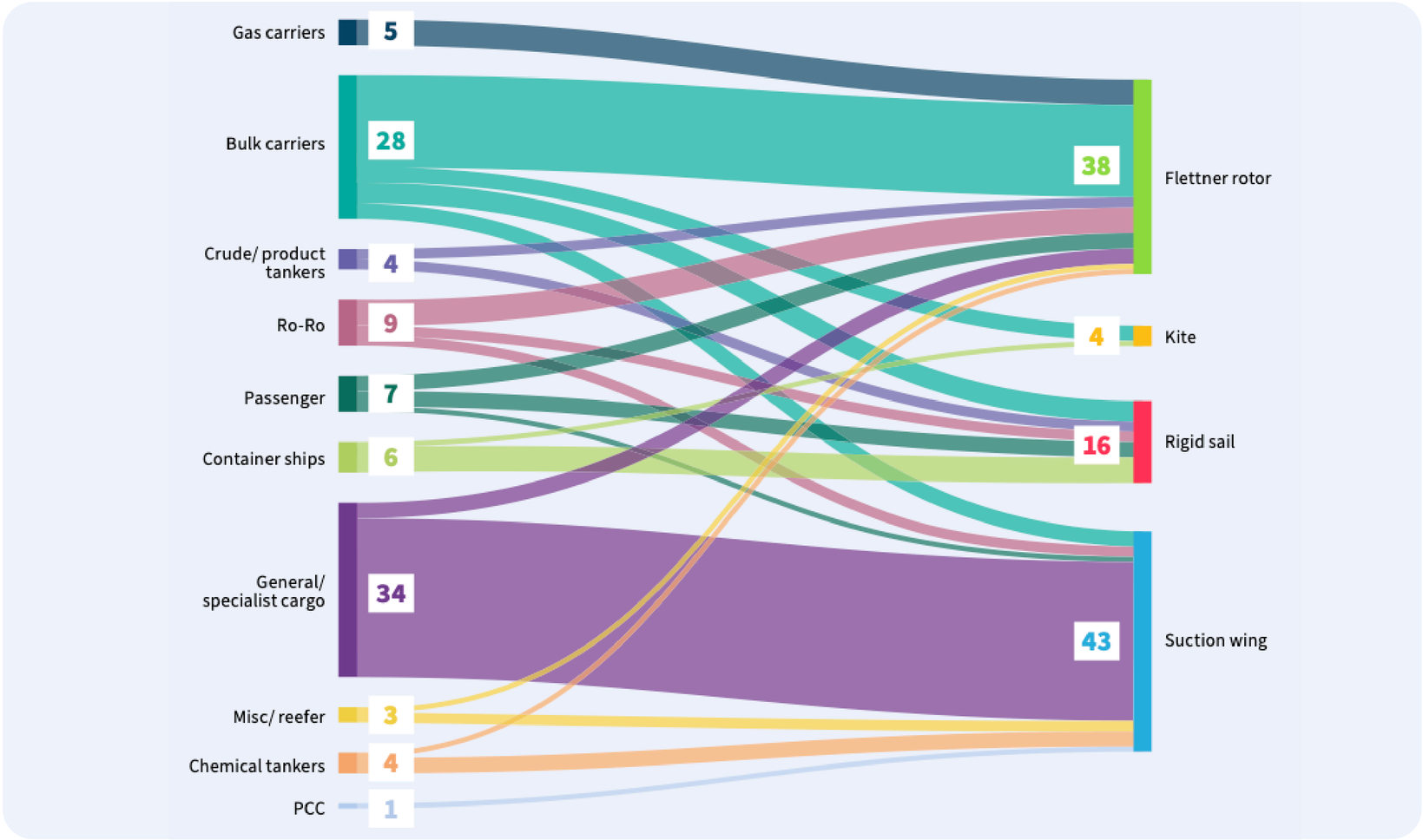
Flettner Rotor

Suction Wing

Rigid Sail

Kite

WASP Vessels and Technologies

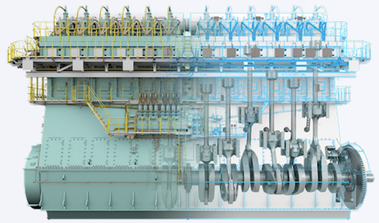


Source: Clarksons, 29 Feb, 2024

Propulsion Performance

Fuel

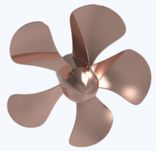
Engine Efficiency



Engine Condition

Power

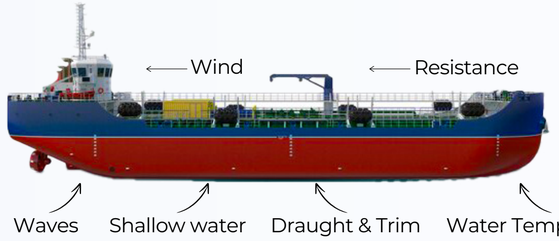
Propeller Efficiency



Propeller Condition

Thrust

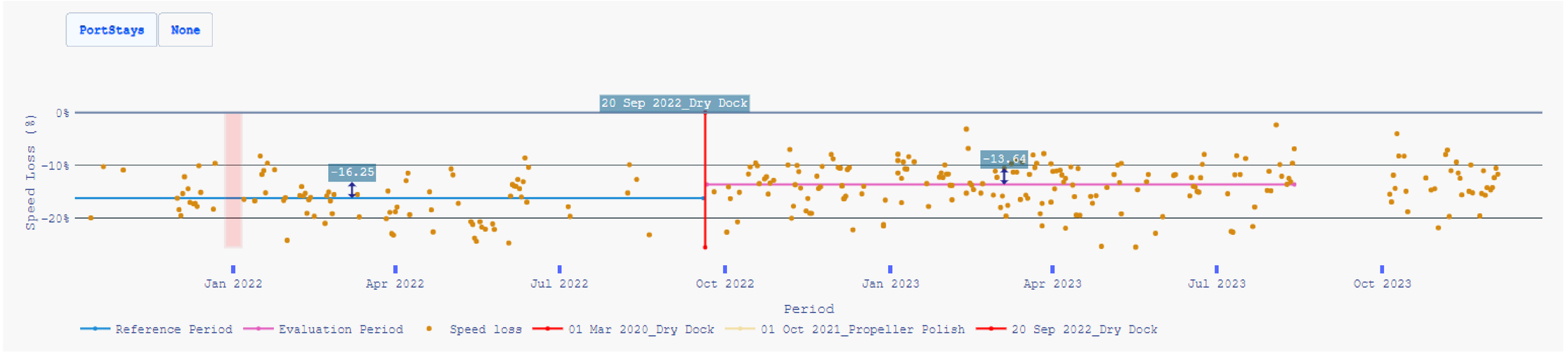
Hull Efficiency



Hull Condition

Speed

ROI of ESDs



Fuel Savings

+8.48 MT/24 Hrs

Fuel Savings

+8.48 MT/24 Hrs

FO Savings : 5.8%

Year 1 FO consumption = 5000T

FO saving = $\frac{5000 \times 5.8\%}{94.2\%}$

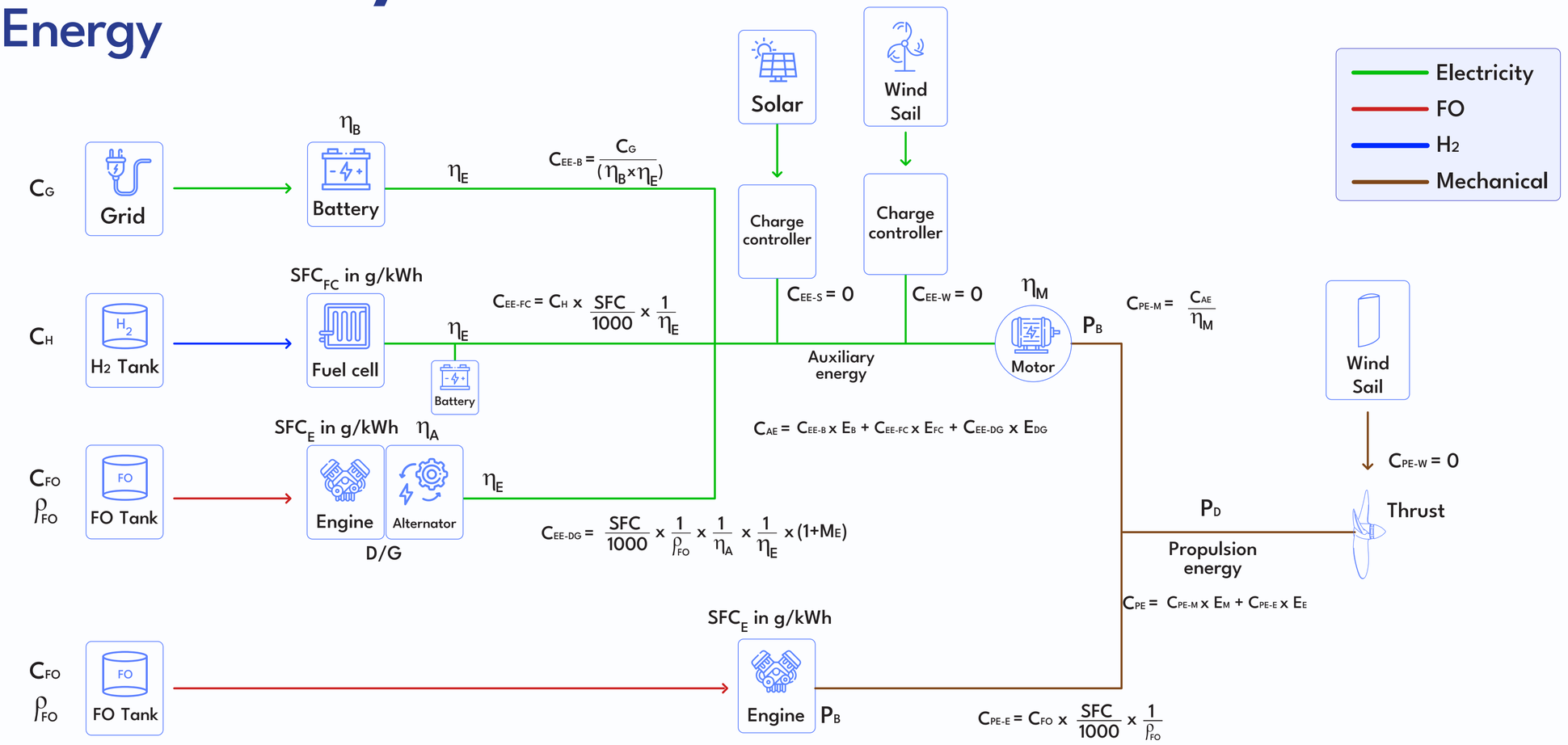
AV. FO price if year 1 = $500

Year 1 saving = $154,000

CAPEX | Finance Cost → NPV ROI

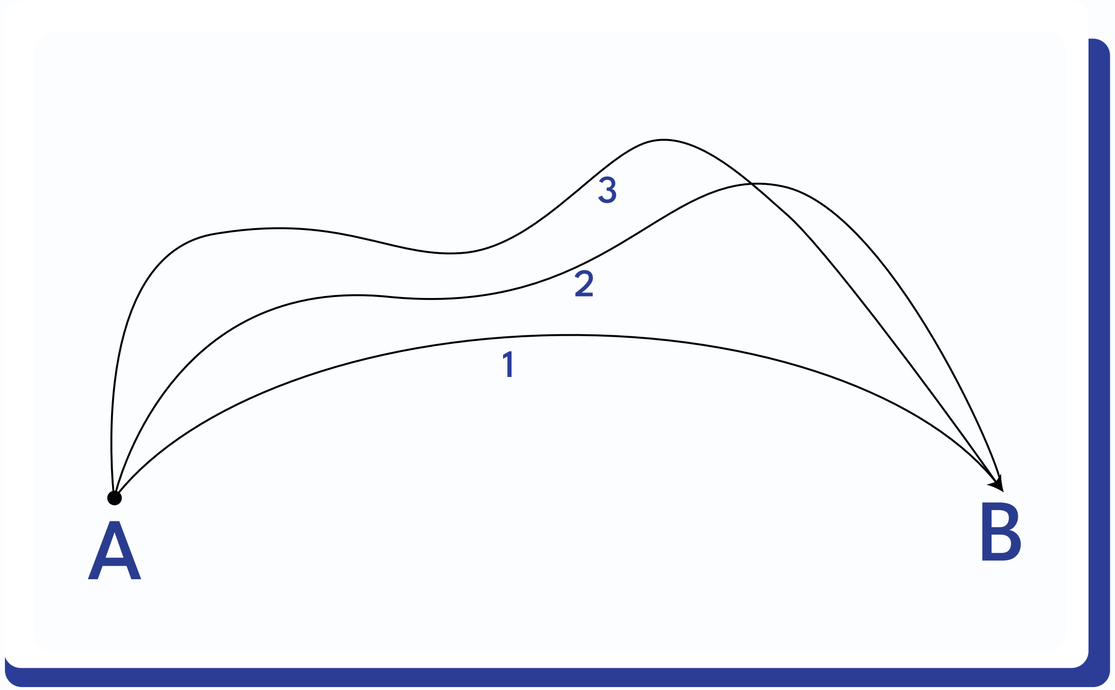
WASP ROI Analysis

Cost Of Energy



C_G - Cost of grid $/kWh	C_{EE-S} - Cost of electrical energy fron solar	P_D - Power delivered to propeller	E_B - % Energy from battery	η_M - Motor efficiency
C_H - Cost of H_2 $/Kg	C_{PE-E} - Cost of propulsion energy from engine	P_E - Effective power	E_{FC} - % Energy from fuel cell	η_B - Battery efficiency
C_{FO} - Cost of fuel $/l	C_{PE-M} - Cost of propulsion energy from motor	SFC_E - Specific fuel Consumption engine g/kWh	E_{DG} - % Energy from D/G	η_E - Other system efficiency
C_{EE-B} - Cost of electrical energy from battery	C_{PE} - Cost of propulsion energy	SFC_{FC} - Specific fuel consumption fuel cell g/kWh	E_S - % Energy from solar	η_A - Alternator efficiency
C_{EE-FC} - Cost of electrical energy from fuel cell	C_{AE} - Cost of auxiliary energy		E_M - % Energy from motor	ρ_{FO} - Density of fuel Kg/l
C_{EE-DG} - Cost of electrical energy fron D/G	P_B - Brake horse power		E_E - % Energy from engine	ρ_{FO} - Density of fuel Kg/l
			M_E - Engine maintenance (LO, filter, overhauling) ~ 10% C_{FO}	

WASP ROI Analysis



No Route Optimisation
No WASP

Route Optimisation
No WASP

1 to 3

2 to 3

Route Optimisation
WASP

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Thank **You.**

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