

DECARB ERA Prudent Investments:

Case Study Vessel DECARB Technical & Financial Pathways

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What we learned



Before Decarb

- Legislations were static and not changing
- Assets achieve full lifetime and retain valuable earning years
- Energy saving devices: efficiency solution adds CAPEX premium while bring OPEX annual savings
- Vessel revenue unchanged as speeds remains the same (no CII influence)

Payback fair guidance



Decarb Challenges

- Legislation accelerates & threaten ship investment lifetime
- Assets are stranded, retire early and lose valuable earning years
- Vessel revenue plunges without ESD's as speeds slow down to maintain operative CII grades.



Decarb Era

- Legislation dynamics accelerate & threaten ship investment lifetime
- Employ ESD to RESCUE Assets and restore valuable earning years
- ESD's brings OPEX Annual Savings and enhances environmental footprint
- Vessel revenue rescued by ESD as Speeds elevate each year to achieve same CII grade over no solution

Payback false guidance

Drivers



POSEIDON
PRINCIPLES

Asset Finance

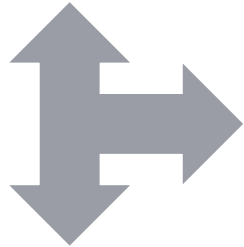


Billions \$*

“Poseidon Principles” \$200B Maritime Portfolio represents nearly half of Shipping Loans

Young entity June 2019 with expanding membership

30+ Large Financial & Leasing Institutions



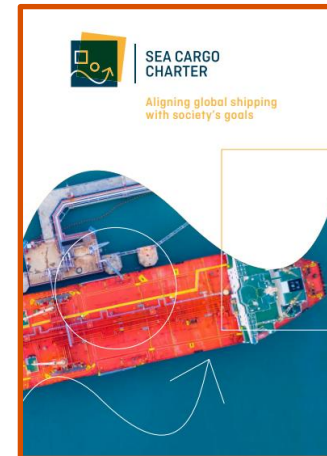
Global Regulation

“IMO” 2050 GHG ambition for 50% emissions reduction, tighter global efforts supplemented by regional legislation



SEA CARGO
CHARTER

Operational Assets



Massive Cargo Flows**

“Sea Cargo Charter” control daily movements

> 5,000 ships

major cargo charterers

represents >1/7 charter party fixtures

new entity October 2020 founders =

36+ Companies...

Global marine powerhouses of Asset Finance and Operational Assets forge entities to align global shipping with society’s goals toward cleaner climate

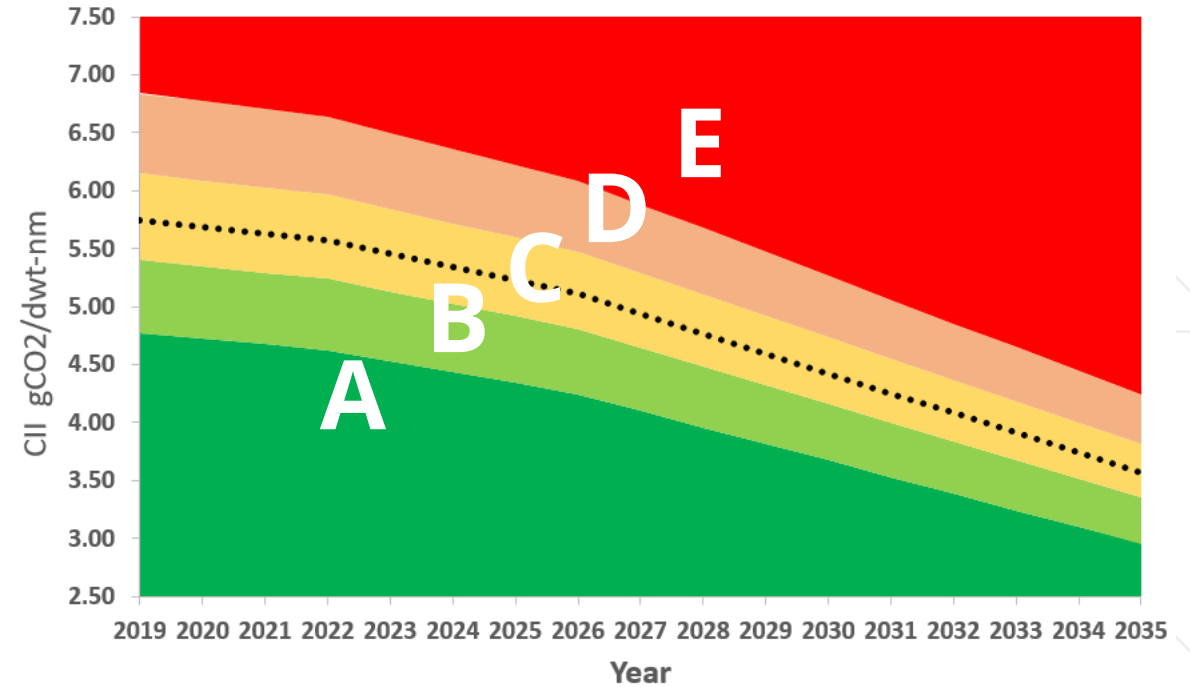
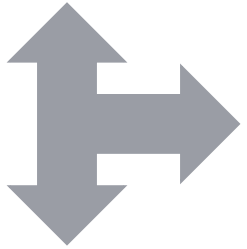
Decarb Metrics



POSEIDON PRINCIPLES

Asset Finance

$$AER = \frac{\sum_i C_i}{\sum_i dwt D_i}$$



SEA CARGO CHARTER

Operational Assets

$$x_i = \frac{C_i}{T_i D_i}$$

$$attained CII_{ship} = M / W$$

Energy Efficiency Operating Index, Annual Efficiency Ratio, Carbon Intensity Index attained

Payback:

Assumes INVESTMENT LIFETIMES and REVENUES EQUAL amongst alternative choices “with” or “without” efficiency device savings.

**If Revenues are same,
all other things equal (markets, cargo, trade route, ship, ports, ...)
then vessel speeds are assumed same amongst alternatives.**

Before DECARB ERA Payback provides investment guidance.

With DECARB ERA, when all things are equal, to maintain IMO numeric grade with ever tighter requirements; ship speeds must slow down, then revenues differ amongst alternatives.

Payback is severely challenged by DECARB ERA.

The Solution:

The business of shipping pursues maximum profitability that embraces...

TOP END REVENUES with COST SAVINGS

Seeking highest Free Cash Flow “FCF” returns

Free Cash Flow “FCF” is a financial metric for any investment: New Build or Retrofit: any solution Energy Efficiency Device, Technology, or Digital Platform

Business Cases



300K DWT VLCC



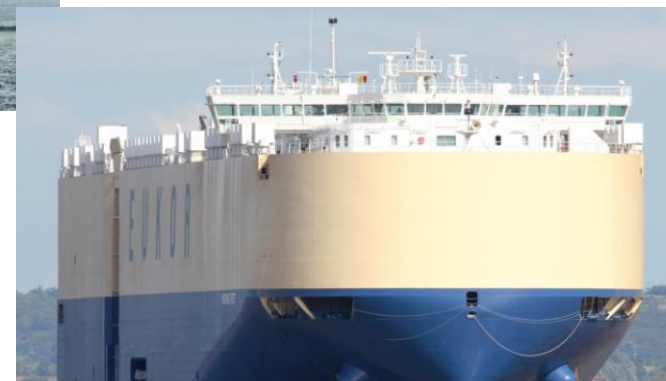
210K DWT Capesize



10K TEU Container



58K DWT Supramax



8000 CEU PCTC

The Project Challenge:

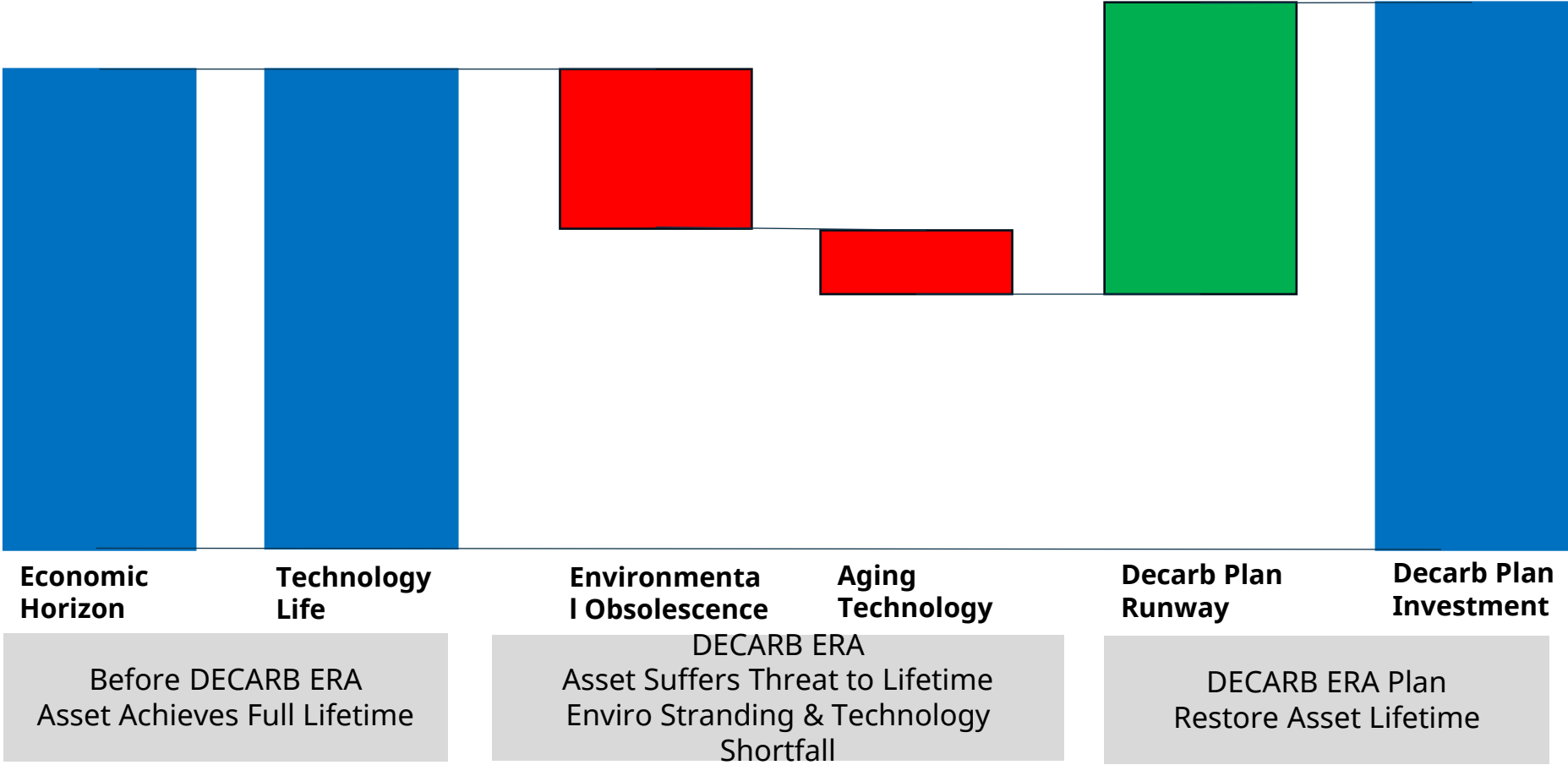
Fuel savings NOT enough to justify the investment with Payback near 10 years.



Can we justify the DECARB investment?

Asset Transition Waterfall

DECARB Era conveys a real threat of asset wealth destruction as investment horizons suffer curtailment amidst ever stricter environmental pressures. A DECARB plan runway rescues an asset restoring original investment lifetime and possible additional years.



Economic & Technological Lifetimes Diverge.

Business Case for DECARB Plan Rescue: Technical & Financial Pathways

- 10,000 TEU Containership
- Built 2012
- Near midlife, historically asset expects 25-year investment lifetime
- IMO CII grades deteriorating from C into D category
- ABSENT DECARB plan vessel to slow steam which threatens several years loss of economic viability
- DECARB PLAN offers pathway to extend the investment runway...
 - Speed is a competitive advantage to maintain port rotation schedule and top end revenues
 - Rescue and restore earning years otherwise lost due to environmental stranding
 - Calculate Investment Return of Runway Extension
 - Identify prudent investment pathways



Vessel in danger of investment stranding due to environmental obsolescence that curtails the curtailing economic life and results in losses of several millions USD.

Great Uncertainty

Environmental: Air, Water, Noise

Regulatory: Global, Country, & Regional:
IMO, EU, US EPA, States, & Provinces

Economic: Business, Financial, & Market Risks

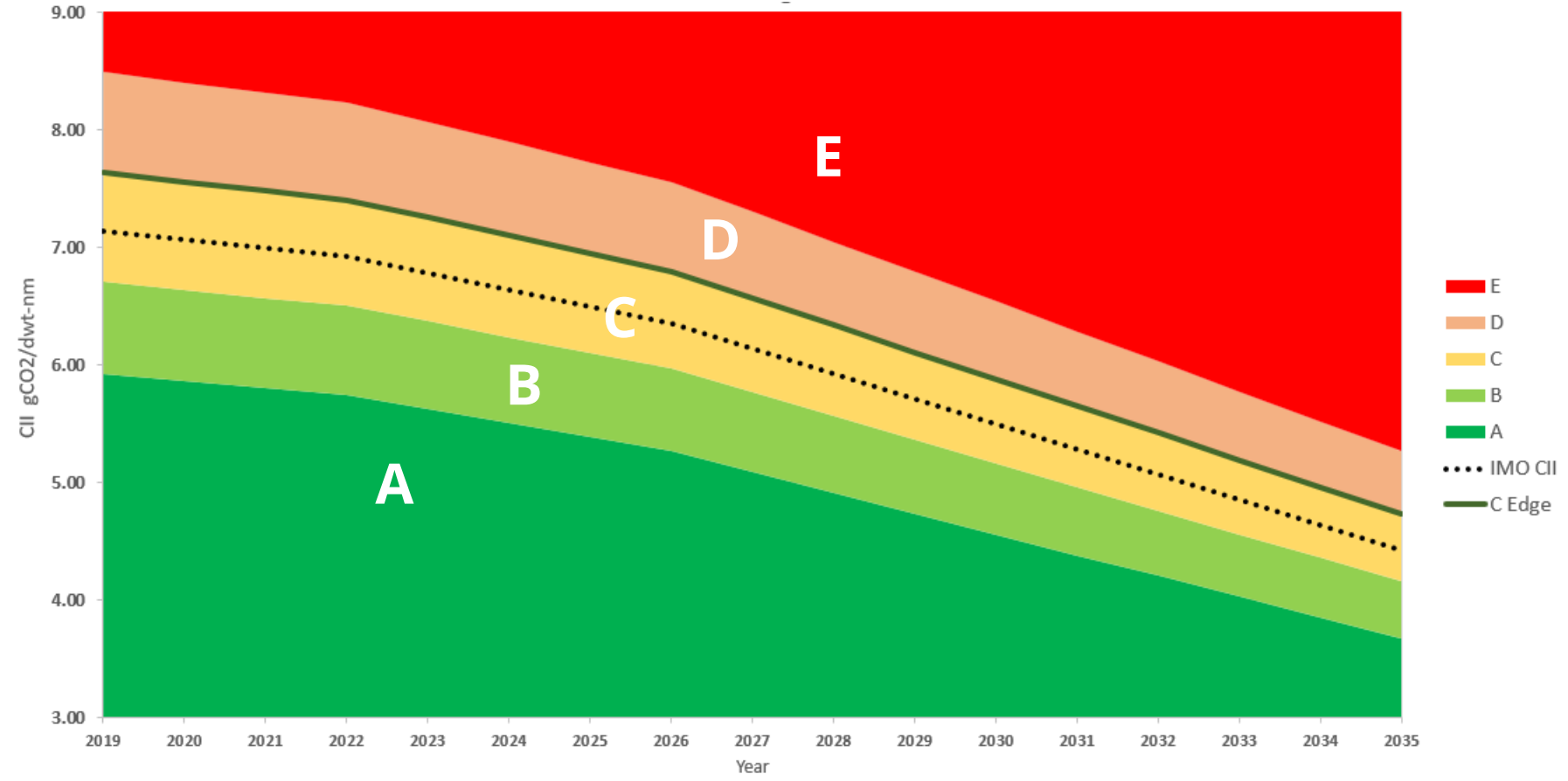
Political: Changing parties move goalposts

Technological: Future fuels, propulsion technologies, prime movers, fuel cells, bio and synthetics, carbon capture, energy storage, digital platforms

??? Black Swan

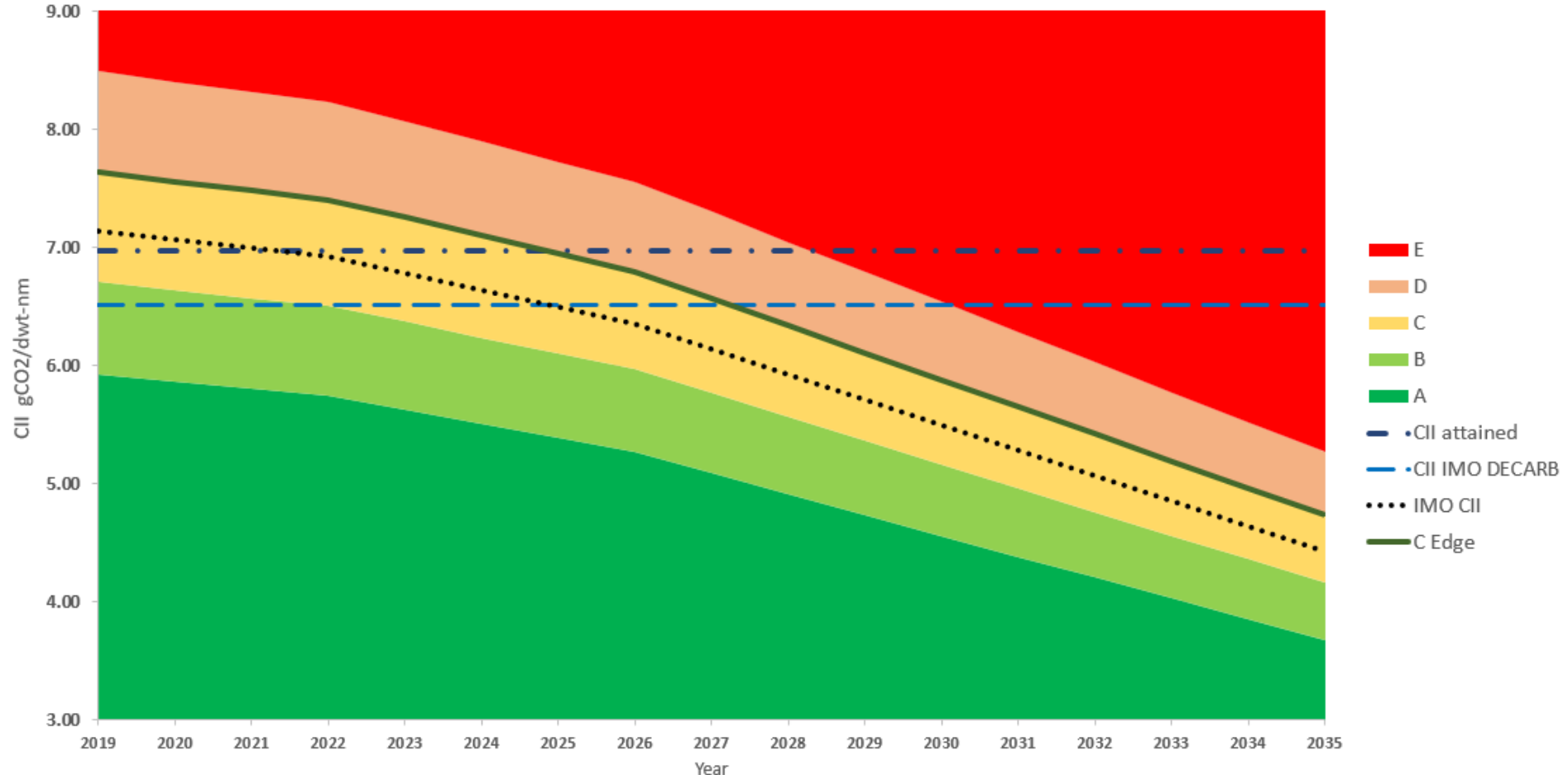
Real Asset Options carry the highest value during periods of greatest risk uncertainty; providing investment flexibility to defer, launch, expand, or abandon.

IMO Grades A, B, C, D, E



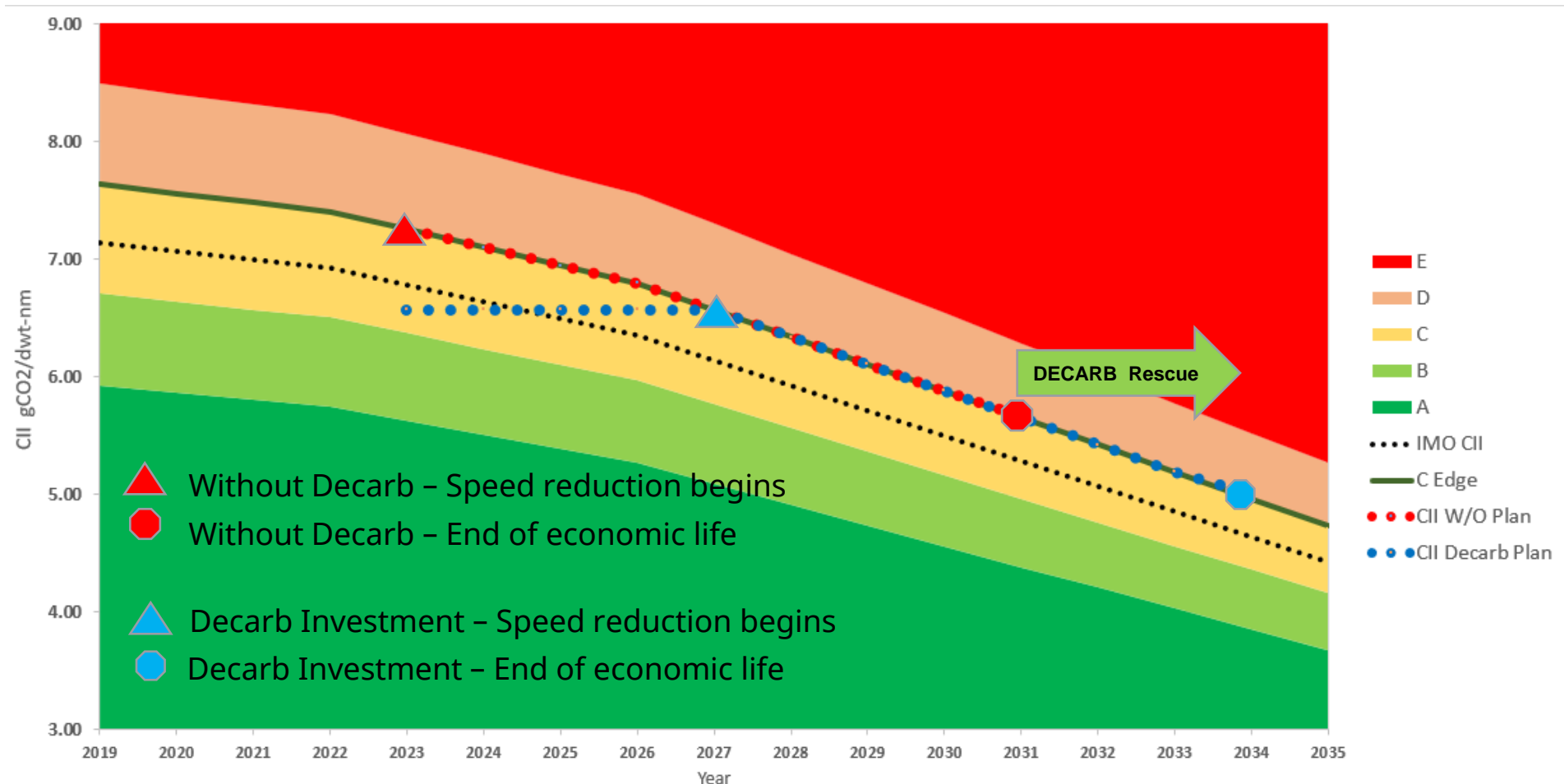
Avoid D or E ratings as these require SEEMP recovery plan and progress to improvement.

Vessel IMO Grades Slipping



Current C grade slipping to D before 2025, enters E during 2028. Decarb plan Energy Saving Device "ESD" creates efficiency improvement to rescue grades.

Vessel Encounters Speed Reductions



Absent DECARB plan, speed slows to “EDGE WALK C” whereas with DECARB plan vessel speeds elevate and are resistant to reduction by falling much slower pace, enables schedule competitive advantage.

Speed is a Competitive Advantage

Speed Maintains Port Rotation Schedule

Containership port rotation schedule and exact timing is key to maintaining cargo flows across complex logistics chain interchanges and customers expect precision.

Speed allows ships to make up time when necessary and arrive/depart ports on exacting schedule.

Schedule timing is strict to allow synchronization with other logistics modes; such as terminal dock availability, stack trains, trucking, air, as high value time sensitive cargoes...



Decarb Plan at higher speeds can Achieve same IMO Numeric as... Absent Plan at lower speed

$$CII_{attained} = \frac{\sum_i C_i}{\sum_i DWT D_i}$$

↑ Speed Increase, with efficiency
Fuel up = Co2 up

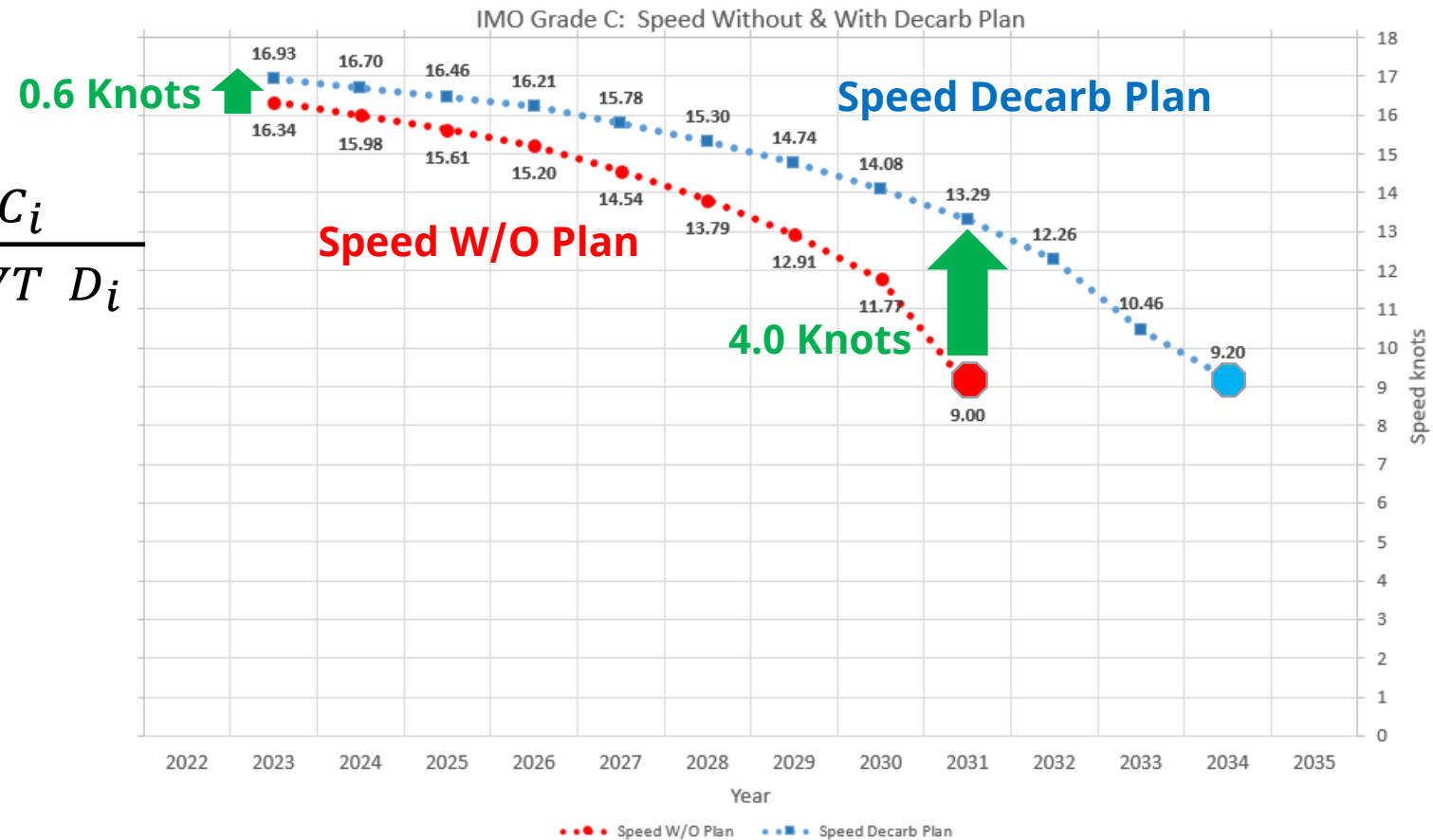
↑ Speed Up = Distance Up

Although speed goes up with greater fuel consumption, it does so efficiently with DECARB plan and corresponding distance in denominator increases... resulting solution finds same numeric CII value.

One can increase vessel speed and seek result solution for same IMO CII numeric value as offsetting distance also increases.

Vessel Absent DECARB Plan and with DECARB PLAN ... Achieve same IMO CII Attainment Number

$$CII_{attained} = \frac{\sum_i C_i}{\sum_i DWT D_i}$$



Trade route calculations show vessel ABSENT DECARB plan speeds year 2023 are 0.6 knots slower and this competitive disadvantage expands to over 4 knots year when compared to DECARB PLAN year 2031. Speed is competitive advantage as it preserves maintaining port rotation schedule.

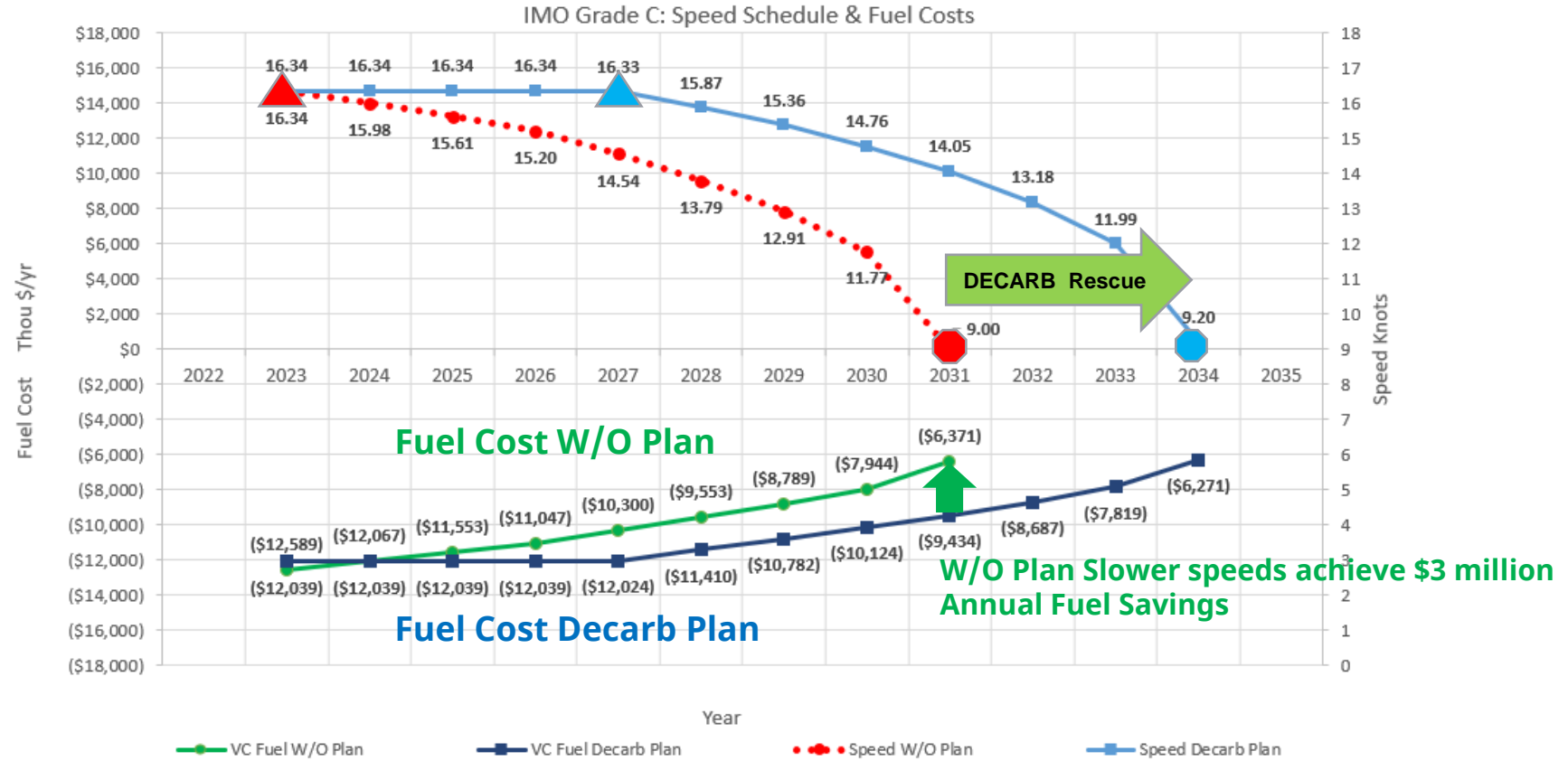
Fuel Savings is traditionally represented by Engineers as a “Cost Savings & Environmental” advantage.

However, vessel operations seek to maximize free cash flows and not necessarily optimized by minimal costs.

The market conditions are the primary driver with synchronization amongst complex logistics to capture top end revenues for profitability; fuel costs are relegated to distant secondary influence.

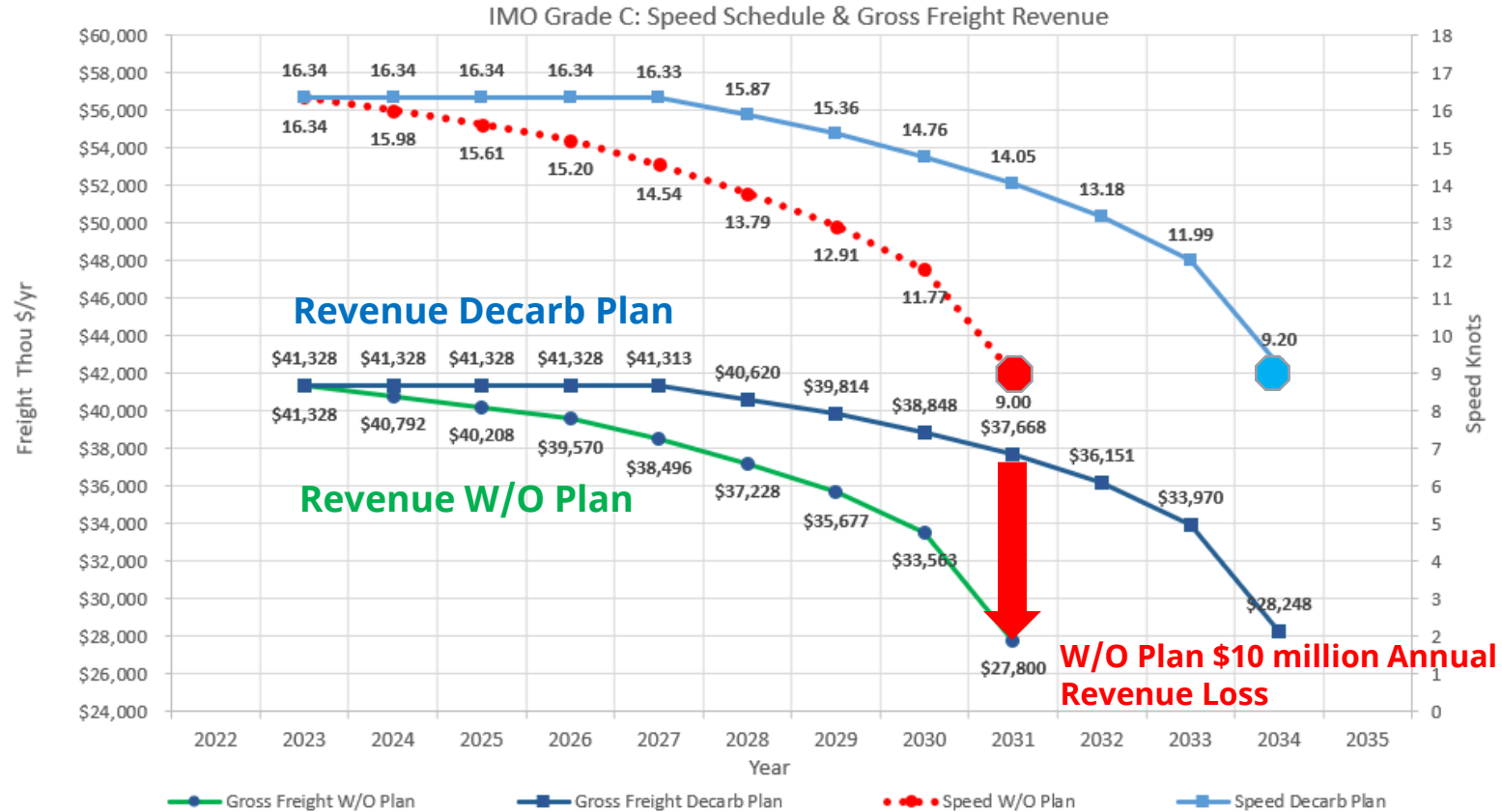
One can cost save to the ultimate savings, zero business! Vessel operation complexities: the business of shipping, cargoes, routes, and chartering with financials is key to understanding maximum profitability.

Vessel Fuel Savings not source of Competitive Advantage



Vessel ABSENT DECARB plan achieves modest annual trade route fuel cost savings versus DECARB PLAN with higher speeds. However, this ignores the ABSENT PLAN sharp fall off in top end revenue that overcomes meager fuel savings... causing rapid free cash flow shrinkage.

Vessel Top End Revenues Initialize Competitive Advantage



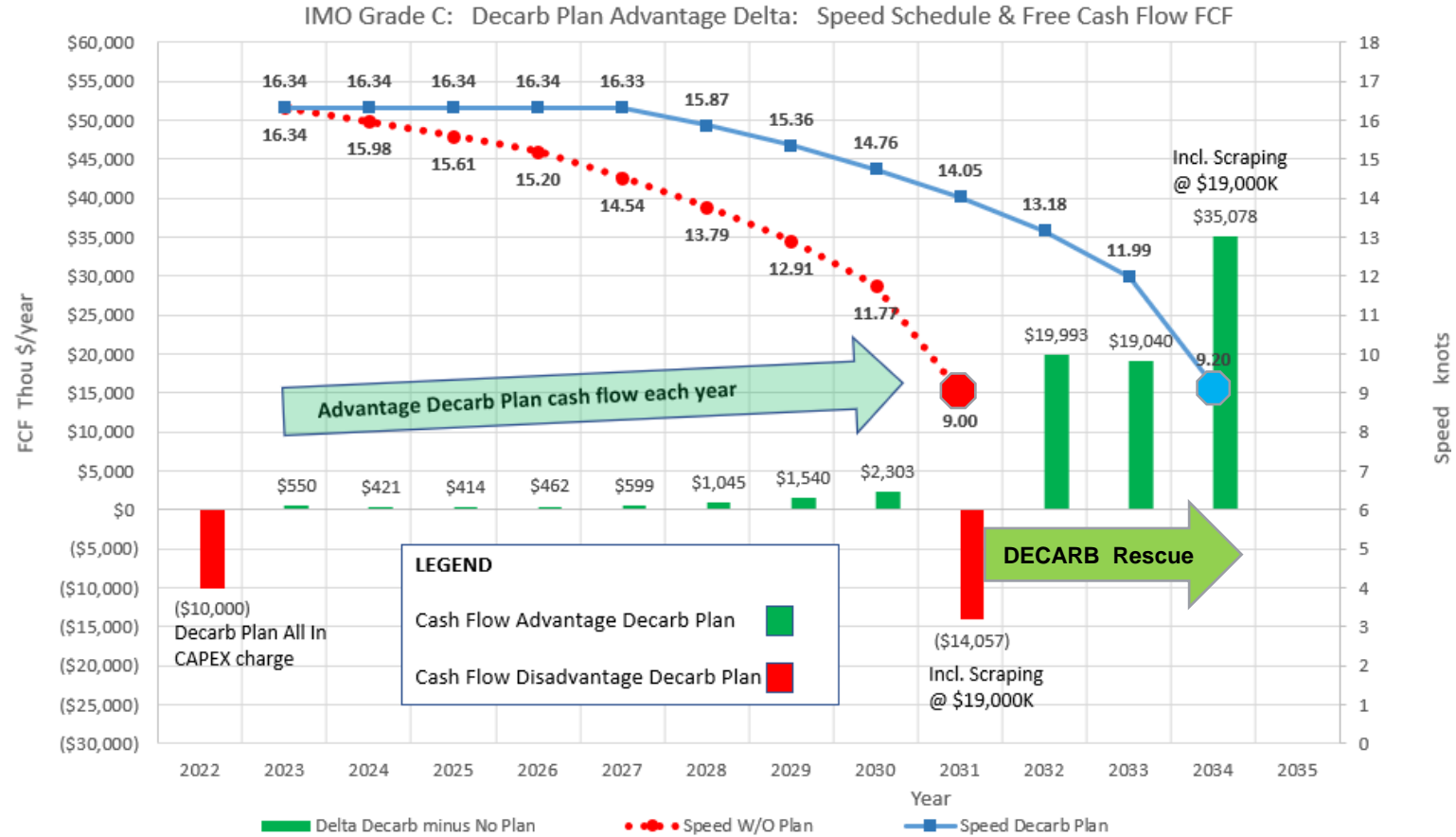
Vessel ABSENT DECARB plan on trade route has lower yearly revenues that suffer sharp falloff, whereas DECARB PLAN ship maintains higher revenues with slower reduction rates. Revenue top line begins Free Cash Flow "FCF" is superior for DECARB PLAN vessel over ABSENT PLAN.

Vessel DECARB Plan Extends Runway and Rescues Several Operating Years



Decarb Plan:

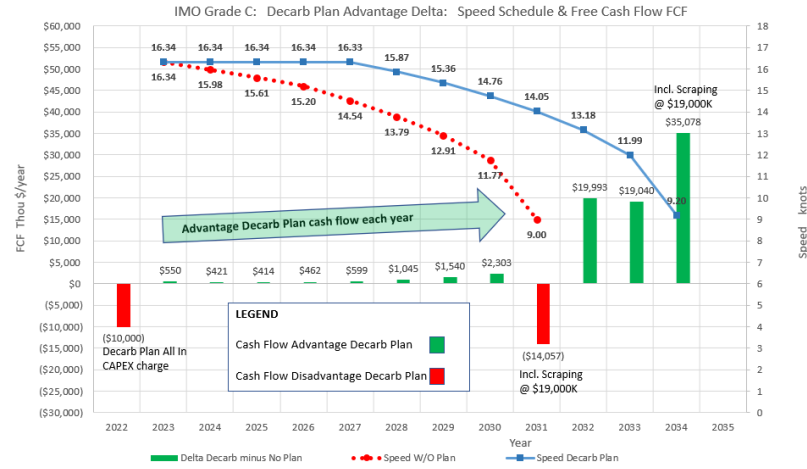
FCF metric
 WACC 10%
 NPV \$13.9 Million USD
 wealth gain overcomes
 \$10 Million initial CAPEX.



NPV is superior for DECARB PLAN 3-year rescue: several FCF tens of millions USD over ABSENT PLAN.

Payback metric is Challenged by Environmental DECARB ERA

Payback Metric is Blind to DECARB Era Pot of Gold at End of Rainbow



Payback 9.1 Years...

Payback provides FALSE guidance for environmental decarb era solutions.

Decarb Plan:

FCF metric
 WACC 10%
 NPV \$13.9 Million USD wealth gain overcomes
 \$10 Million initial CAPEX.



Payback provides FALSE guidance for environmental decarb era solutions, utilize Free Cash Flow for new ERA.

Strategic Advantages DECARB Plan

SPEED IS A COMPETITIVE ADVANTAGE WITH DECARB PLAN, because it maintains Port Rotation Schedule crucial for containership success.

DECARB PLAN allows greater speed with better efficiency to retain the same IMO CII numeric result; numerator increasing fuel consumption at higher speed, the denominator counterbalance also generates greater distance

DECARB PLAN RESTORES SEVERAL YEARS OF VESSEL OPERATIONAL CASH FLOWS and rescues vessel from early end of investment life curtailment caused by environmental stranding due to obsolescence...

the runway extension of 3 additional operational years for DECARB PLAN rescues millions of investment operational cash flows otherwise lost as vessel is scrapped far too early under ABSENT PLAN.

PAYBACK IS CHALLENGED AS A METRIC IN THE DECARB ERA with false guidance because it misses the rescued cash flows "pot of gold at the end of the rainbow."

Free Cash Flow "FCF" is the essence of any investment and captures the wealth generated for any DECARB Plan, newbuild or retro-fit: employing energy saving devices, technologies, and digital platforms.

Appendix

What is Free Cash Flow "FCF"?

