

Maximize revenue in Carbon challenged World

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To the Point

Question:

How to "Maximize revenue in carbon challenged world?"

Industry Experience:

"Fuel costs represent as much as 50-60% of total ship operating costs, depending on the type of ship and service."

MAWETAL's Answer:

1. Lower fuel cost is money
2. Think out side the ship Box, Reverse of Cold Ironing!

MAWETAL LLC Novel Technology Scope

Use lowest cost clean patented fuels:

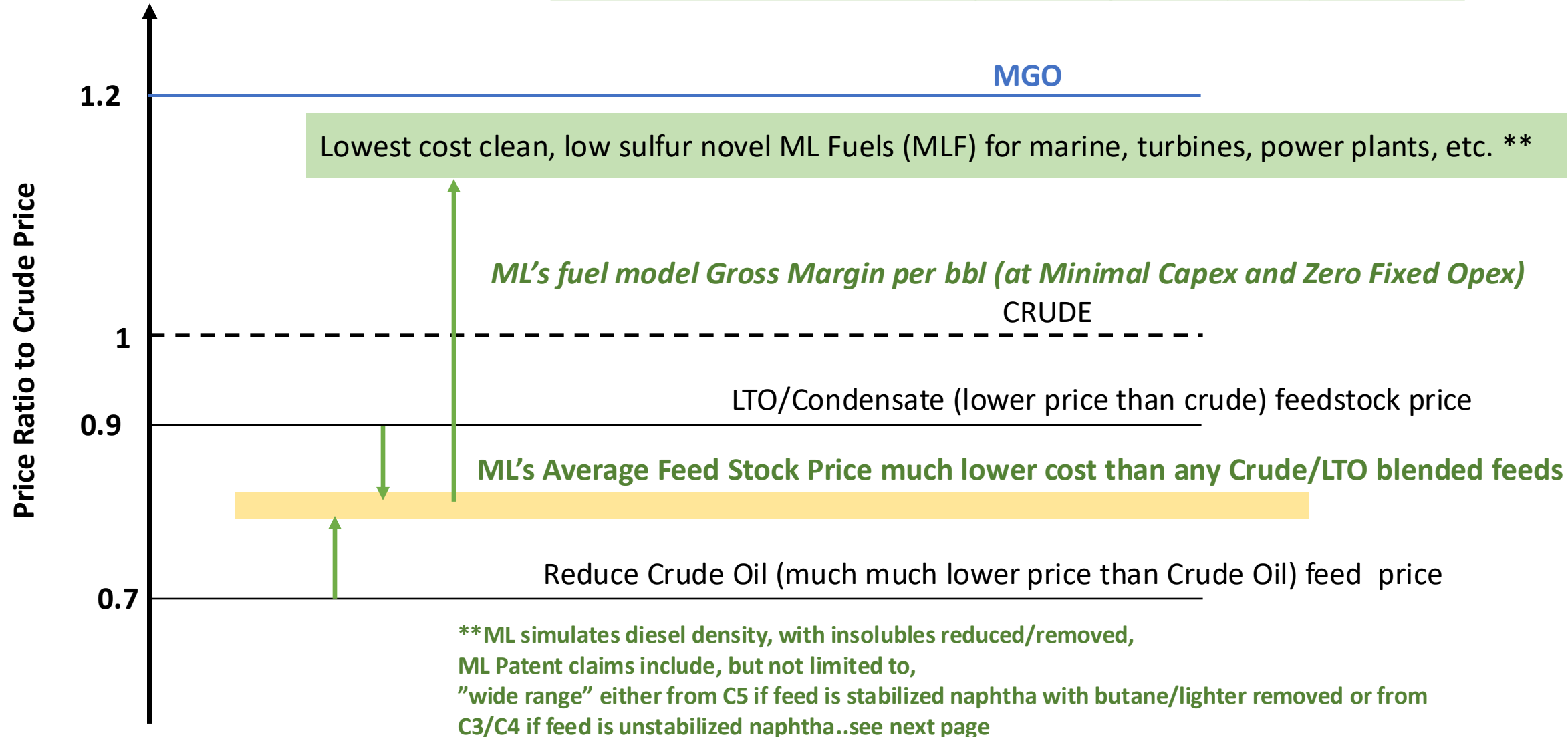
- made with lowest cost liquid feedstocks
- use (existing) lowest cost infrastructure (Crude Carriers and floating roof tanks)
- liquids that price compete with landed, regasified LNG (do the math)
- reduce energy in fuel making (~1/3 OPEX, ~1/3 CAPEX)
- major Carbon Credits by 50-75% less CO₂ in fuel making alone
- avoid capture costs by not making CO₂
- off-set at-sea fuel costs by ship-to-shore power transfers (+ more Carbon Credits!)
- trade lower flashpoint (within SOLAS cargo) for efficiency & still maintain safety



Basic Money Page = why Refiner as Mawetal licensee can make alternative large margins!

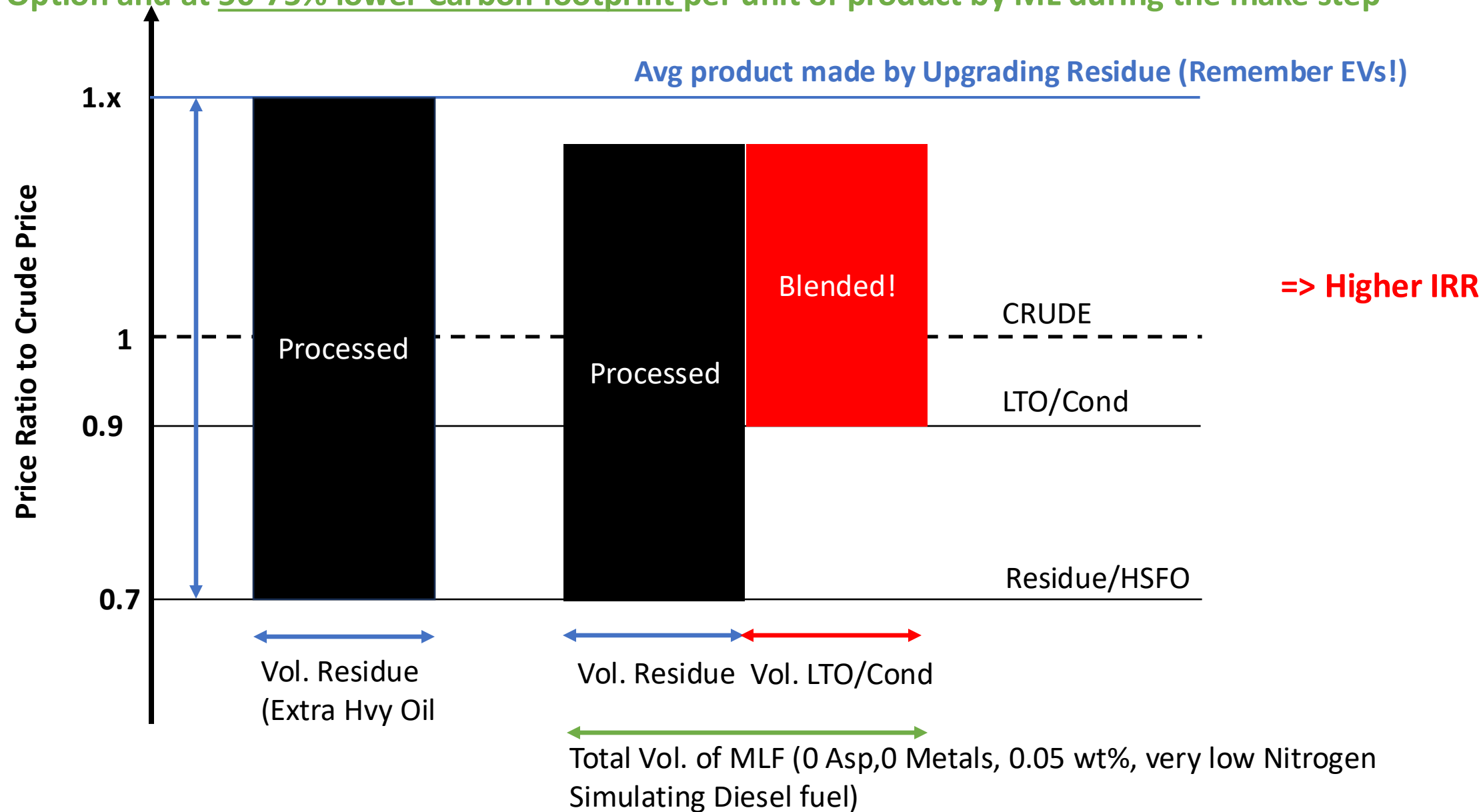
Each Refinery is Different and Each Refiner Can Run Their Own Sensitivity

Based on Their Own Site Market Price Set! But basic math results will reflect the general principles below:

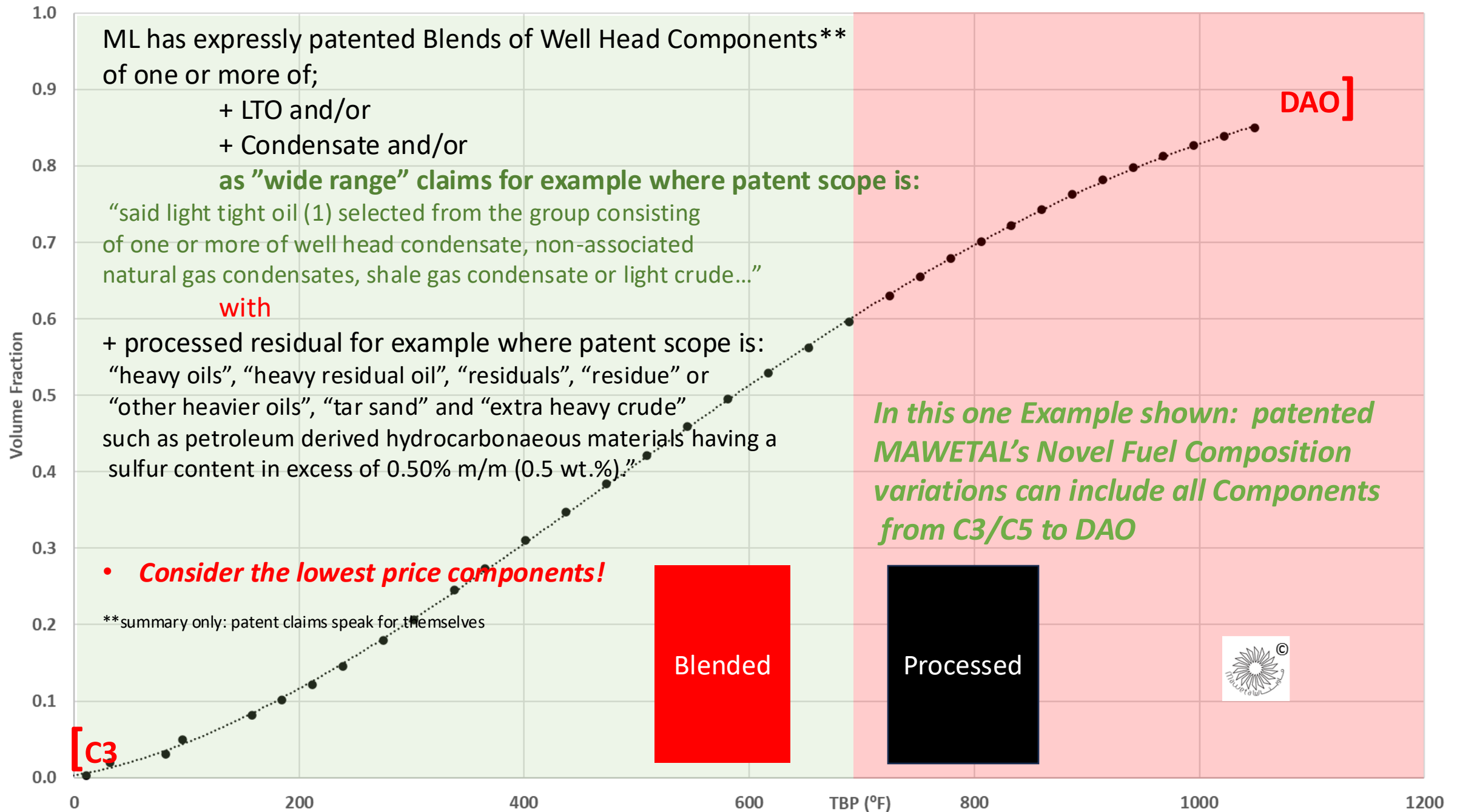


Basic Money Page = why Refiner as Mawetal licensee can make alternative large margins!

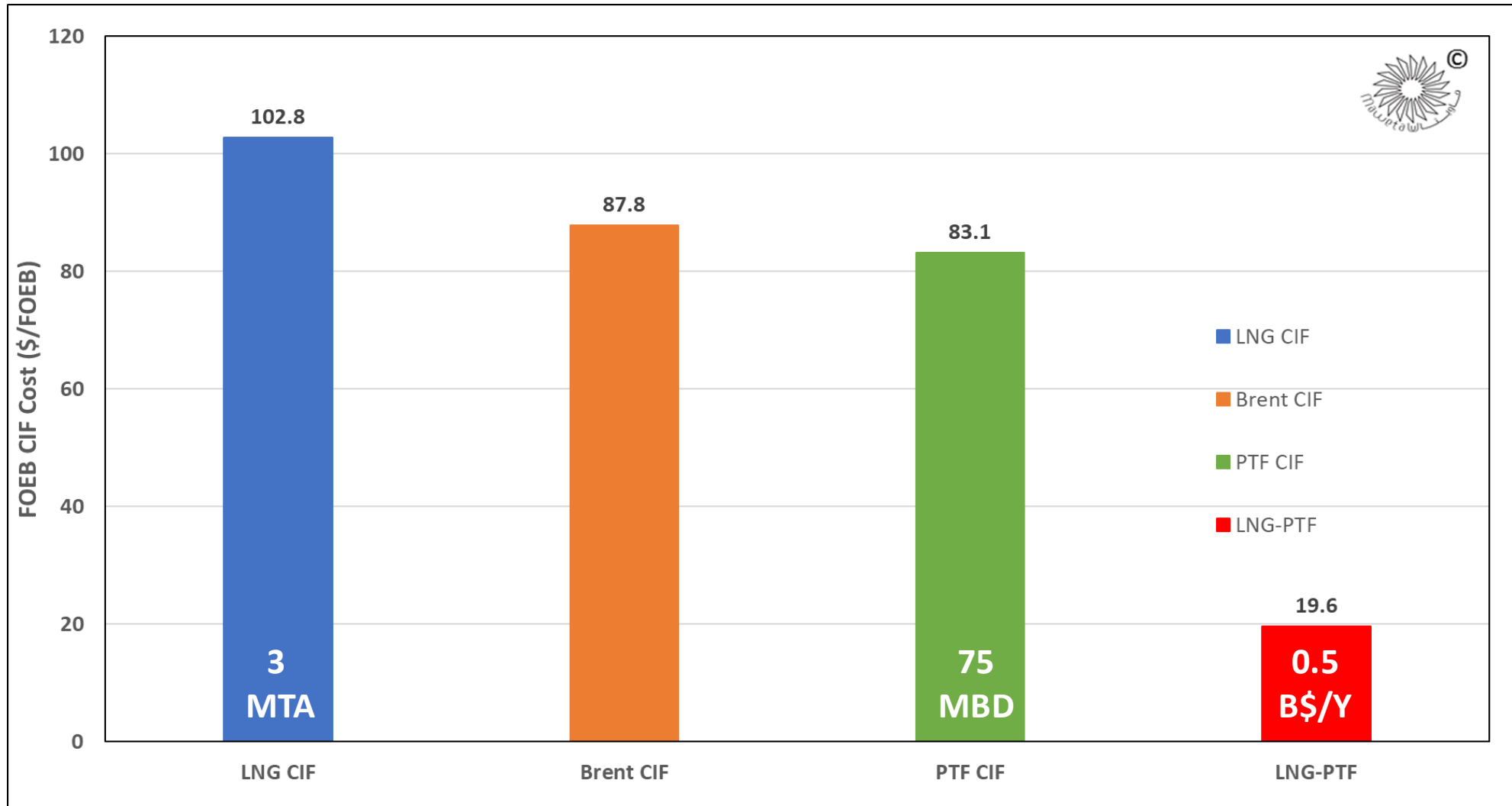
Area (or amount of Money) of the boxes below for the same investment to process the Residue (HSFO) is Higher For ML Option and at 50-75% lower Carbon footprint per unit of product by ML during the make step



TBP Volume Fraction Curve



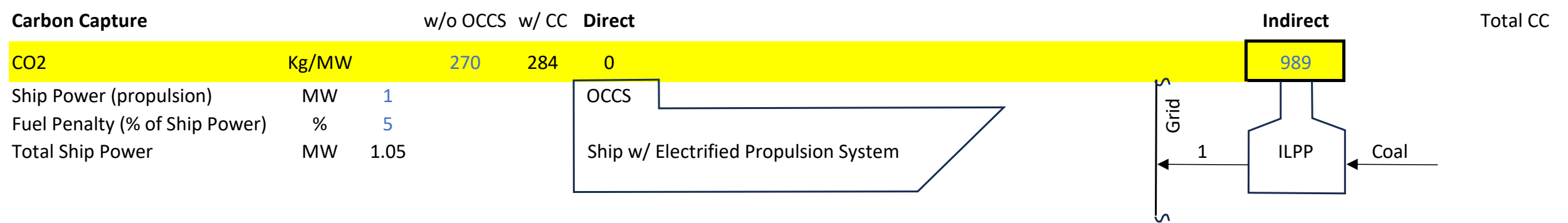
FOEB CIF Cost of LNG, PTF, and Brent



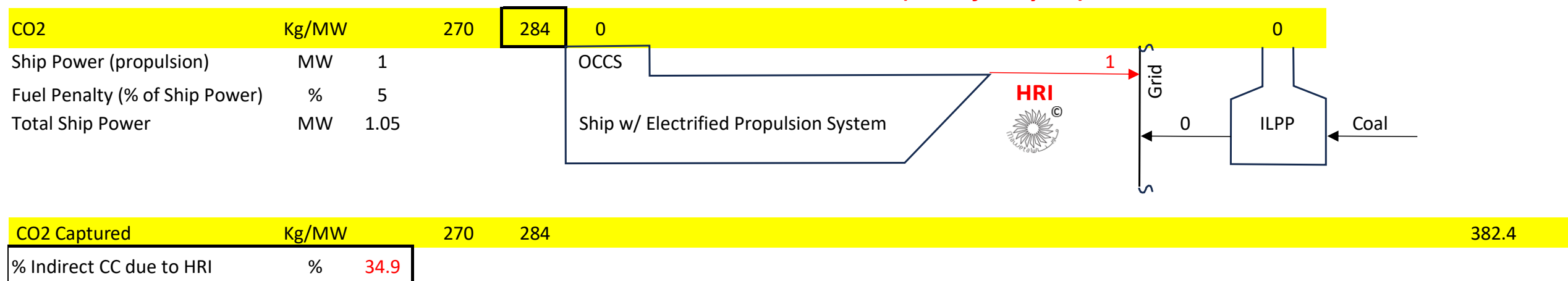
Thinking Out Side the Ship Box!

HRI (reverse of Cold Ironing) Leverages OCCS with Indirect Carbon Credit

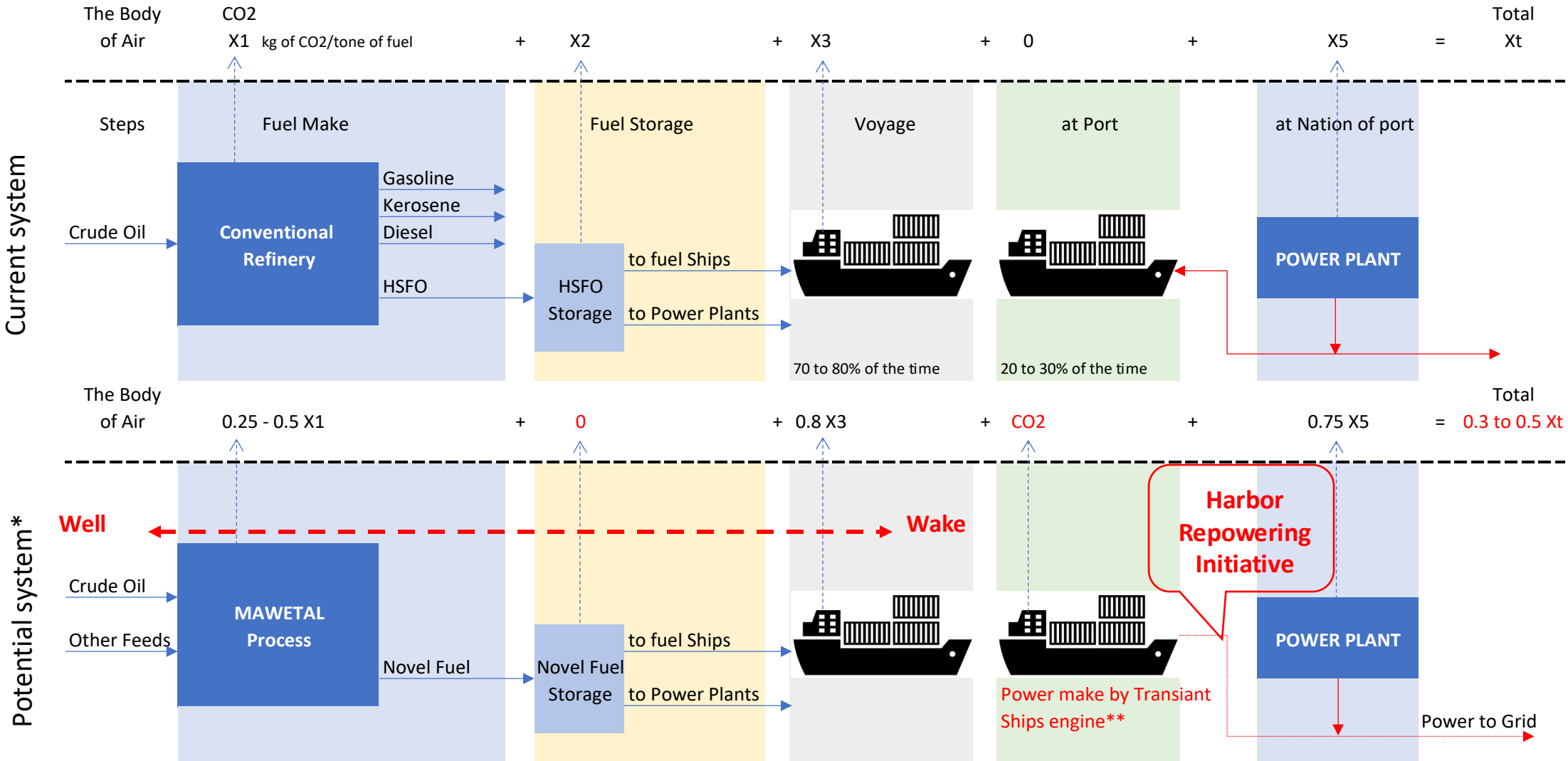
During Voyage



at Port (10% of the year)



ML Novel Fuel Decarbonizing Across Many Business Sectors

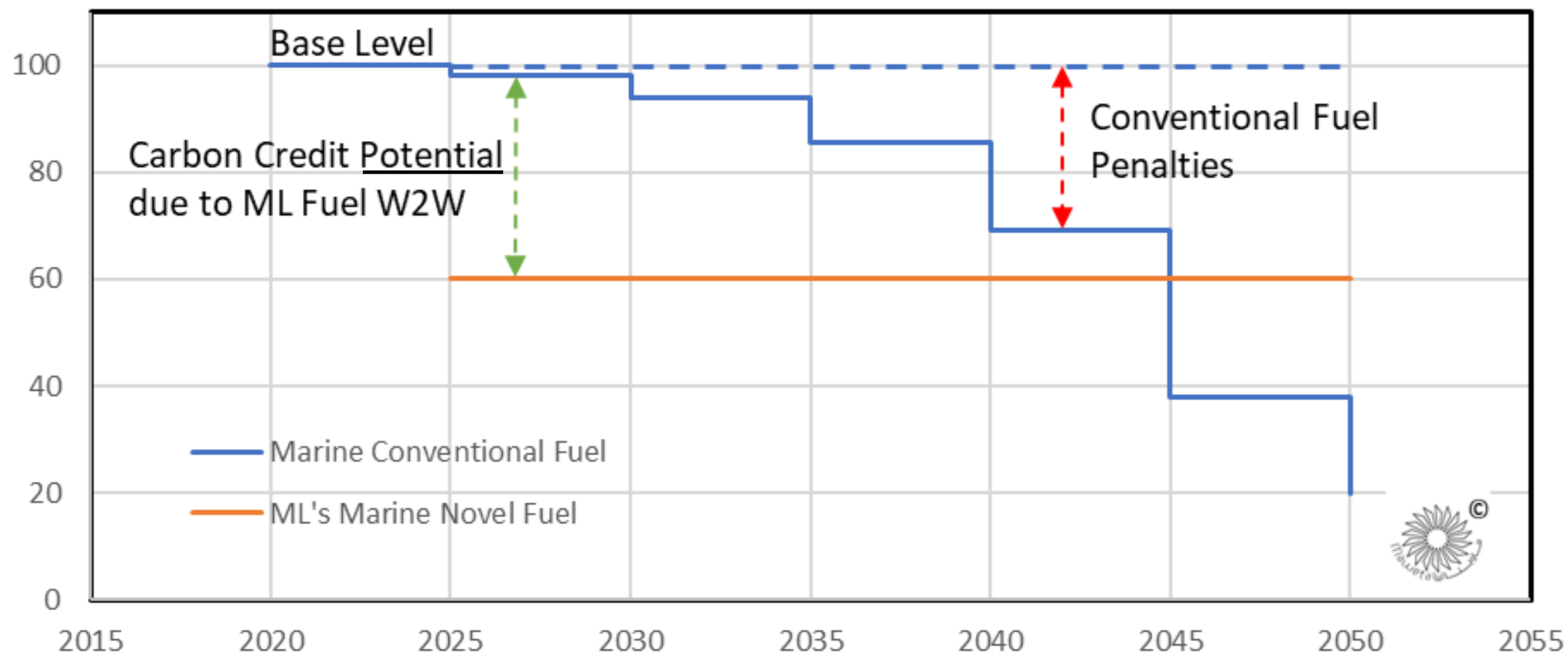


* all claims related for potential system are accepted.

** Harbor Repowering Initiative (HRI) claims using Any Fuel

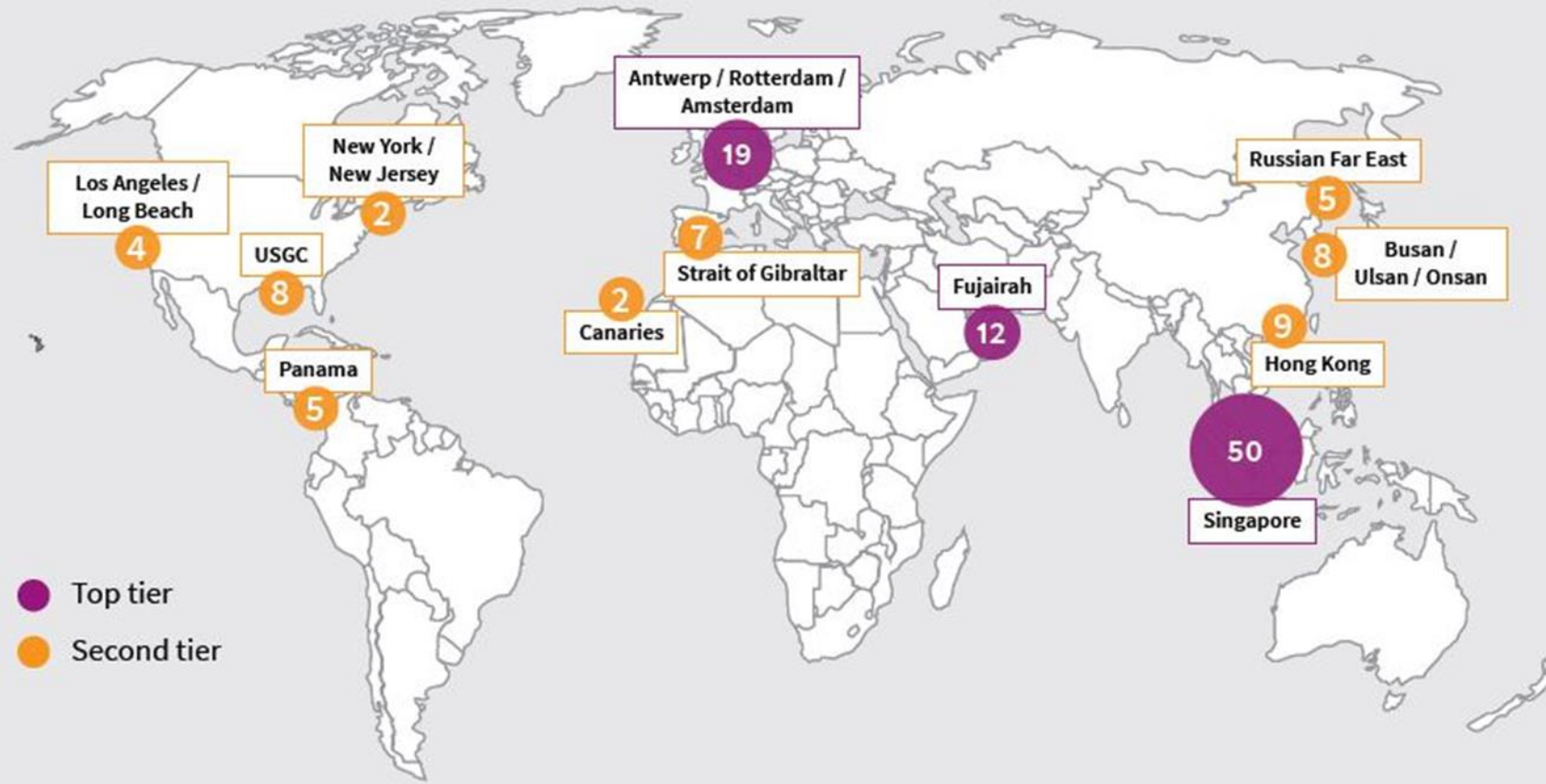


EU New Decarbonization Drive for Incoming Ships to EU Ports - Actual (from Base Level (%)) pre 2025)



Mawetal LLC filing strategy addresses **countries burning Crude and HSFO for power generation & major bunker ports**

The 10 largest bunker ports together account for about half the world's international bunker fuel demand



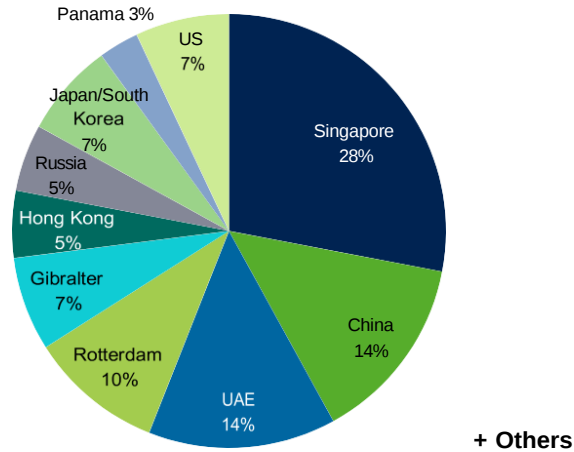
ML has patents to exclude others making, Importing, or selling/trading in:

- USA
- Russia
- Mexico
- Panama
- Singapore
- Morocco
- China
- Hong Kong
- South Korea
- KSA
- Egypt
- Kuwait
- Bahrain
- Qatar (pending)
- South Africa
- Liberia
- Mozambique
- India
- Japan
- EP0 (pending)



MAWETAL LLC technology presence in % of global bunker supply concentration

[Sources: IEA, Schroders]



~75%+ of above World's major bunker markets [+more such as IN, KSA, BH, ZA, EG, MX etc.]

= where Mawetal has broad patents on fuels & how to make fuels

28% Singapore

14% China

5% Hong Kong part of China measured separatelt

5% Russia

7% USA

3% Panama [+ flag

state]

~3.5% Japan of 7% total shared

~3.5 S. Korea of 7% total shared

plus

3-to-5% [and growing] granted India,

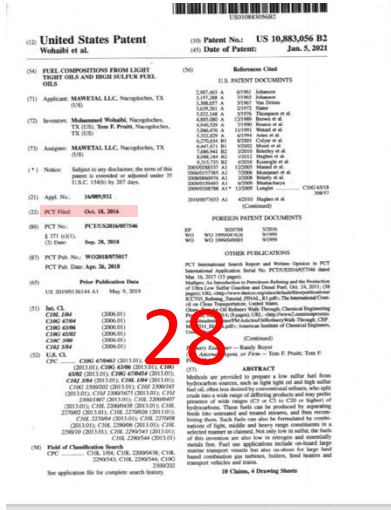
7% pending UAE, Gibraltar, other EPO

+ large percent >65% of major Flag States:

**Panama, Liberia, Malta, Cyprus, France,
Russia, USA, ZA**

PATENTS GRANT(s) – SUCCESS (examples)

USA



28

RUSSIA



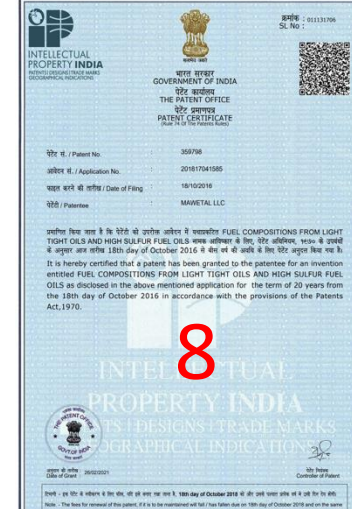
7

S. KOREA



9

INDIA



8

KSA



13

Total Grants 120+

Compositions of matter, methods to make, and on ship blending for SOx etc adjustments

+

>50 other Clean ship power to shore harbor transfer to land grid**

“reverse cold ironing” where ships back up land based renewables

JAPAN



8

SINGAPORE



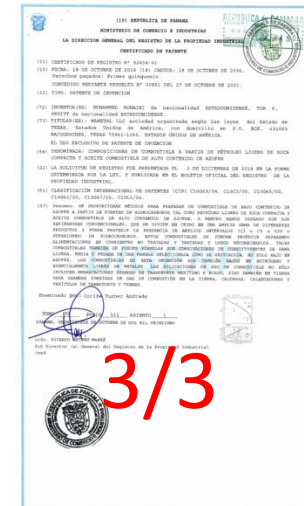
5

S. AFRICA



3/3

PANAMA



3/3

Etc.

CN 5

HK 5

BH 7

EG 5

+ More to come



“Table 1” excerpt of
Mawetal granted patents from
PCT US2016/057540
Title: **Environment-friendly
Marine Fuel**

Patented fuel compositions**
ISO 8217 : “IMO 2020”
with lower flashpoint
but 2020 compliant with SOLAS
for commercial transport

Patented fuel compositions of
(1) **LTO** (defined to include
condensates and other light
crudes) and
(2) **processed residuals** such as
HSFO, including those with
insolubles [asphaltenes, metals
etc.] reduced or removed]

**summary only: patent claims speak for
themselves

Simulated Characteristics For ISO 8217 ^{7.1.1} _{SEP}		Unit	Limit	ISO RMA 10 Spec	Example fuel of this Invention at target sulfur content limit of 0.05 wt. %	Example fuel of this Invention at target sulfur content limit of 0.1 wt. %	ISO Proposed Test Method for Reference cited
Kinematic viscosity at 50°C ^b		mm ² /s where 1 mm ² /s = 1 cSt	max.	10.00	10.00	10.00	
			min.		2.5	2.5	
Density at 15°C		Kg/M ³	max.	920.0	880.0	880.0	see 7.1 ISO 3675 or ISO 12185
			min.		820.0	820.0	
CCAI			max min	850	762 743	762 743	See 6.3a)
Sulfur		wt. %	Statute	Statute 0.10% in ECA 3.50% out ECA at 2016	0.05	0.10	see 7.2 ISO 8754 ISO 14596
Flashpoint		°C	min	60.0	< 60	< 60	
Hydrogen sulfide		mg/kg	max.	2.00	2.00	2.00	IP 570
Acid number		mg KOH/g	max.	2.5	0.05	0.05	ASTM D664
Total sediment aged		mass %	max.	0.1	0.05	0.05	see 7.5 ISO 10307-2
Carbon residue: micro method		mass %	max.	2.50	1.5	1.5	ISO 10370
Pour point (upper) ^f	winter quality	C		0	0	0	ISO 3016
	summer quality						
				6	0	0	ISO 3016
Water		Volume %	max.	0.30	0.30	0.30	ISO 3733
Ash		mass %	max.	0.040	0.03	0.03	ISO 6245
Vanadium		mg/kg	max.	50	0.2	0.2	see 7.7 IP 501, IP 470 or ISO 1459
Sodium		mg/kg	max.	50	10	10	see 7.8 IP 501 IP 4
Aluminum + Silicon		max.	max	25	0.2	0.2	see 7.9 IP 501, IP 470 or ISO 1047

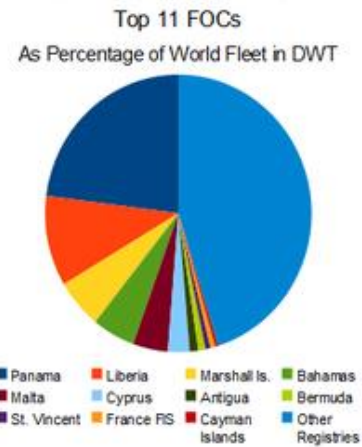


Thank You!

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For example, US "flagged ships" can infringe a US granted patent, regardless of physical location

[1] "The patent laws of the United States afford no protection to inventions beyond or outside of the jurisdiction of the United States; but this [USA patent laws] jurisdiction extends to the decks of American vessels on the high seas, as much as it does to all the territory of the country, and for many purposes is even more exclusive. *Gardiner v. Howe*, 9 F. Cas. 1157, F. Cas. No. 5219 (C.C.D. Mass. 1865).
Principle confirmed at 2018 in *M-I Drilling Fluids UK Ltd. v. Dynamic Air Ltd.*, 2018 U.S. App. LEXIS 12497 (Fed. Cir. May 14, 2018)
"Congress's logic in extending U.S. patent laws to U.S.-spaceships in outer space lends strong support for finding U.S. patent laws extend to U.S.-flagged ship on the high seas." 1990 U.S.C.C.A.N. 4058, 4060-62

US Constitutional patent rights [2] are not suspended during conflicts, including wars [3].

[2] Article 1, Section 8, Clause 8 of the United States Constitution

[3] "FORWARD TO THE PAST -FORGOTTEN LESSONS IN IP LICENSING"
State Bar of Texas Intellectual Property Law 2014, March 20-21, 2014
compilation CHAPTER 5 by Tom F. Pruitt

Consistent with Biden Administration 10 November 2022 plan for "Federal Supplier Climate Risks and Resilience Rule", ML filed in 2023 with CDP.net and received scoring.

[4] <https://www.cdp.net/en/articles/media/in-bold-new-move-biden-administration-makes-cdps-model-the-law>

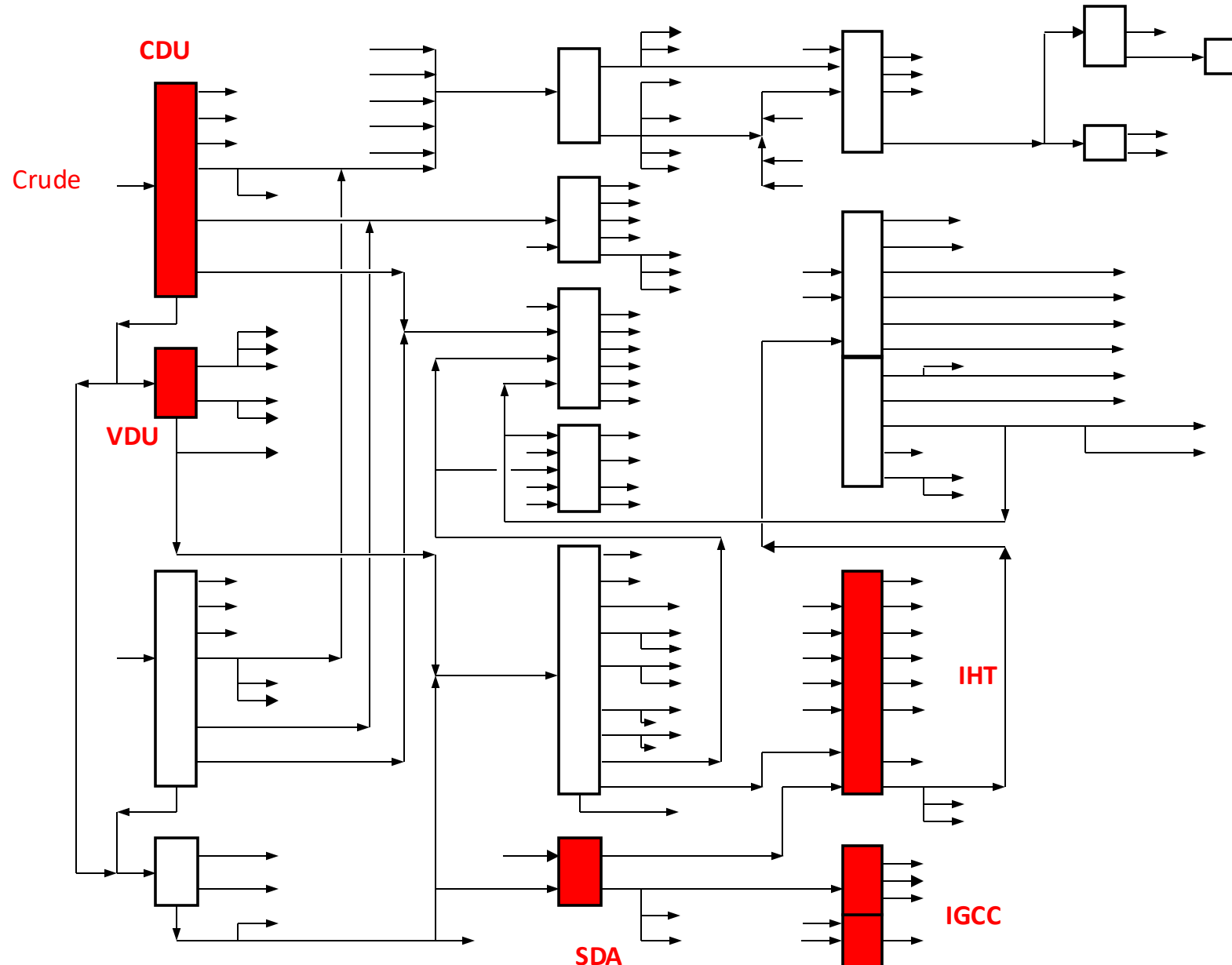
[5] <https://www.whitehouse.gov/briefing-room/statements-releases/2022/11/10/fact-sheet-biden-harris-administration-proposes-plan-to-protect-federal-supply-chain-from-climate-related-risks>

Therefore, essential details about ML and scoring can be found at CDP.net.

[6] https://www.cdp.net/en/responses/896123/Maweta-LLC?back_to=https%3A%2F%2Fwww.cdp.net%2Fen%2Fresponses%3Fqueries%255Bname%255D%3DMaweta%2Bllc&queries%5Bname%5D=Maweta+llc

Processes – How ML Process Art Compares to CR

This is only one process embodiment

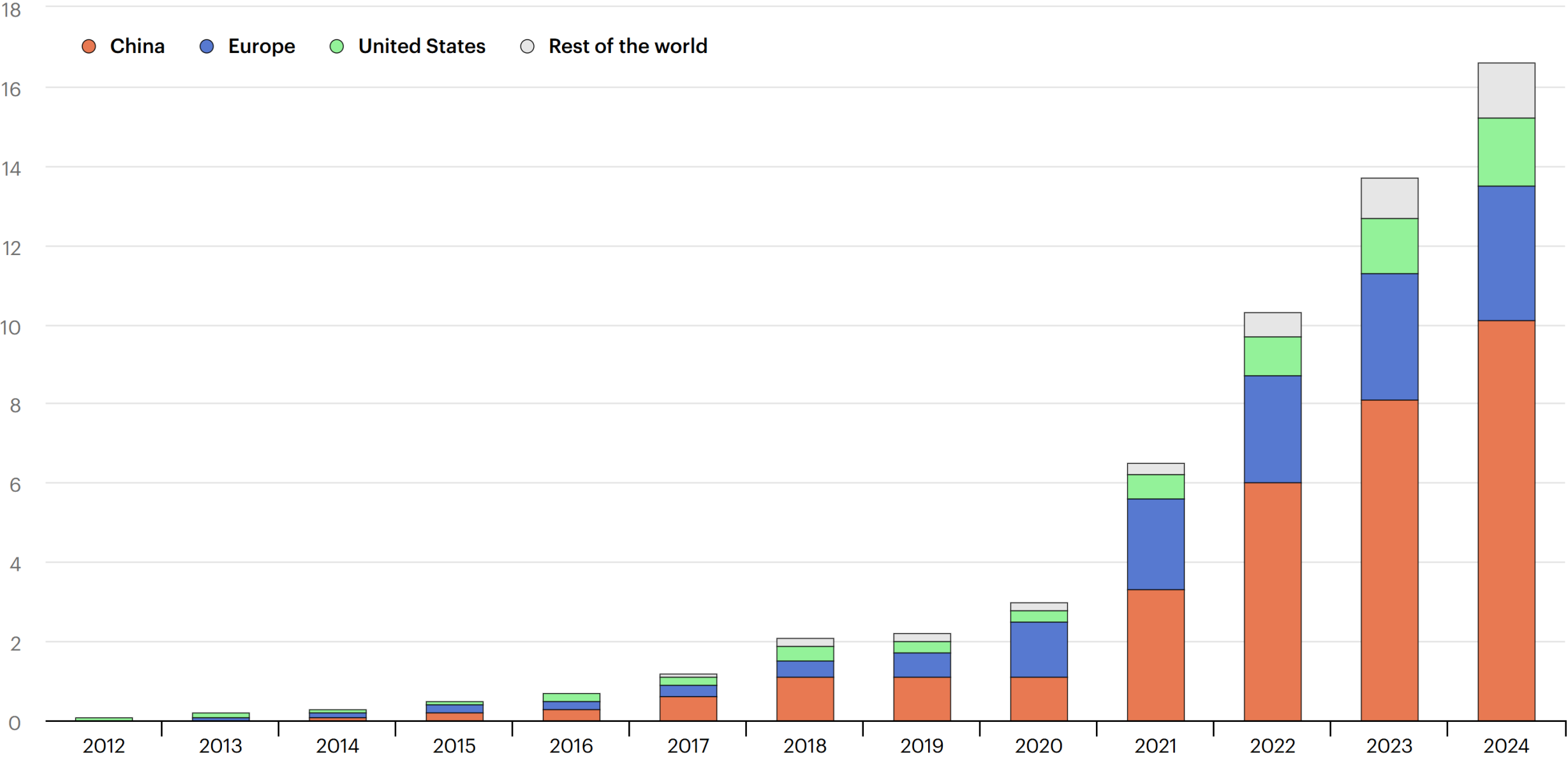


Novel vs Conventional

- CAPEX (~ <40%)
- OPEX (~ <50%)
- Emissions (~ <50%)
- Plot Area (~ <20%)
- Tank Farm (~ <20%)
- Working Capital (~ <20%)

Electric car sales, 2012-2024

million



Test question: Will 'test tube' ML Novel Fuel Work?

Hint #1: > 100 Patent Examinations > 18 countries examined technical utility

ML Novel Fuel is essentially all Crude Oil components except 'problem compounds removed'

- Asphaltenes
- Sulfur
- Nitrogen
- Metals

~ about 5% within Arabian Light (AL) Crude

Hint #2: today Multiple Gas Turbines at KSA PP9 use full range Raw AL Crude Oil

ML Novel Fuel is improved, cleaned, polished Turbine Fuel derived from Crude Oil and/or select lower cost (than crude) hydrocarbon feeds, with problem compounds removed

