

New Bunker Adjustment Methodology & Specification

Why?

We want to have a transparent and fair Bunker Adjustment Model in place where you can see a direct link between financial results and reported consumption as well as investments on the vessel. This change is based on the feedback that we have received from our partners over the years.

It is our goal to have a robust Bunker Adjustment Model in place to handle upcoming IMO regulations.

Bunker Adjustment:

Rewarding fuel efficiency

Bunker Adjustment incentivises Owners to lower fuel consumption and thereby reduce CO2 emissions. It is a transparent way to evaluate a vessel's fuel efficiency compared to the other vessels in the Pool.

A fundamental part of distributing Pool Earnings

We allocate fuel performance-based payments between the vessels in the Pool based on the Bunker Adjustment calculation. Bunker Adjustment is a part of the monthly distribution of Pool Earnings.

Vessel consumption

The actual fuel consumption and performance of each vessel in a pool is based on its daily noon reports.

MAIN ENGINE

20 $\frac{5}{\text{mt}}$

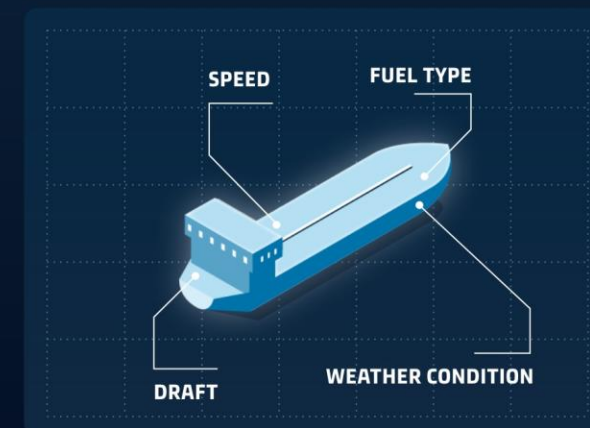
GENERATORS

2 $\frac{4}{\text{mt}}$

BOILER

0 $\frac{5}{\text{mt}}$

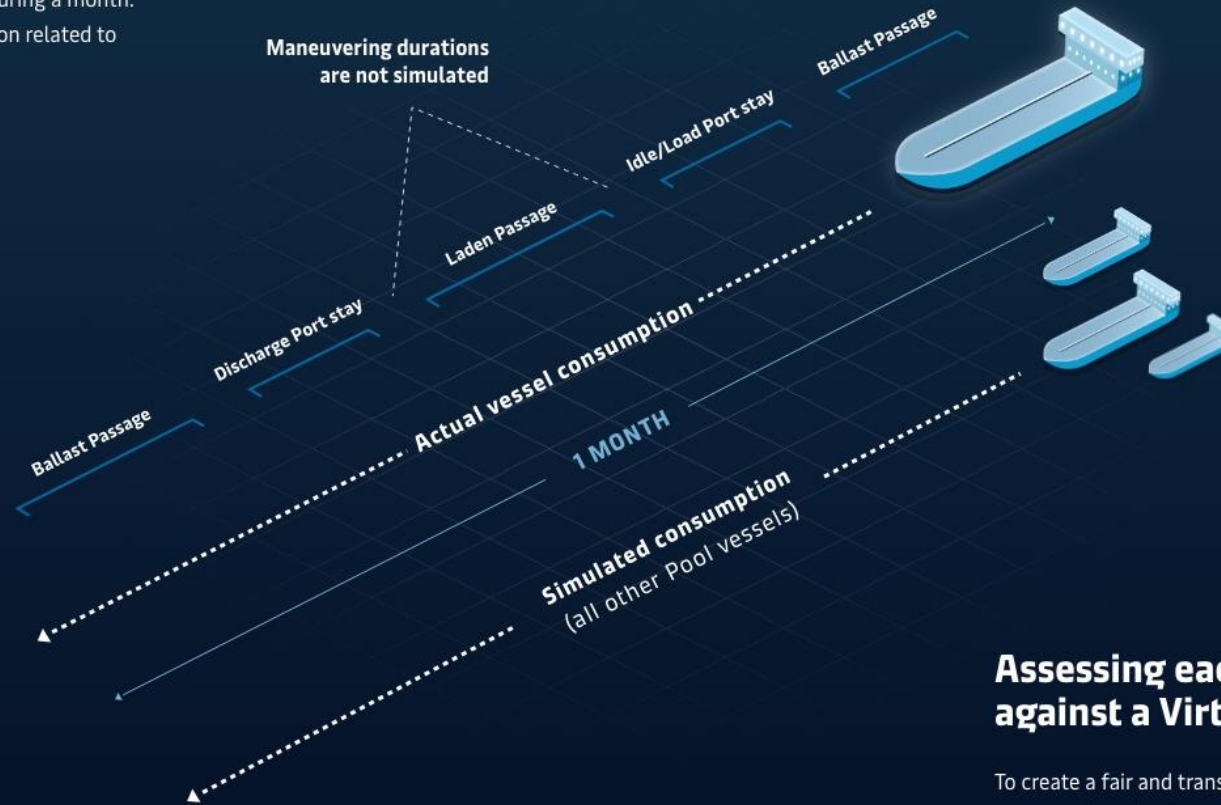
FIGURES FOR EXAMPLE ONLY



The reports include different data on the voyages the vessel performs during each month, such as cargo quantity, speed, draft, weather conditions, and fuel types.

Vessel status for each month

Voyage data is used to define time spent on ballast passages, loading, laden passages, discharging and idling during a month. The time a vessel is maneuvering and consumption related to cargo handling, is excluded from calculations.



Assessing each vessel's performance against a Virtual Pool Vessel

To create a fair and transparent reference point for assessing each vessel's consumption, data is used to create a simulation where all vessels in the Pool perform the same voyage under the exact same conditions. The average of all vessels' fuel consumption equals the Virtual Pool Vessel. The fuel consumption is simulated using fuel tables, deadweight tables, nautical logs, AIS, hindcast data, voyage data, and noon reports.

Bunker Adjustment summarised

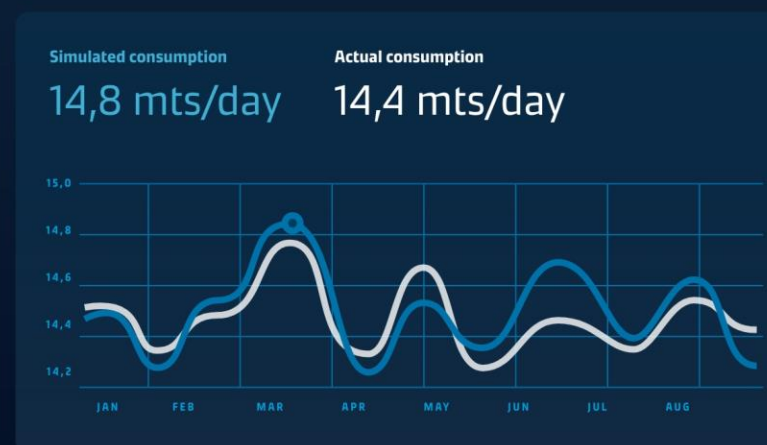


Avg. simulated consumption of all Pool vessels [MT] – Actual Vessel consumption [MT] = Bunker Adjustment [MT]

Metric Tons (MT) x Bunker Basket Price (average price for bunkers consumed during a month) = USD Bunker Adjustment amount

Calculating Bunker Adjustment

The fuel consumption from a simulated voyage of the Virtual Pool Vessel is then compared to the fuel consumption from an actual vessel's voyage. The difference between the two is the Bunker Adjustment.



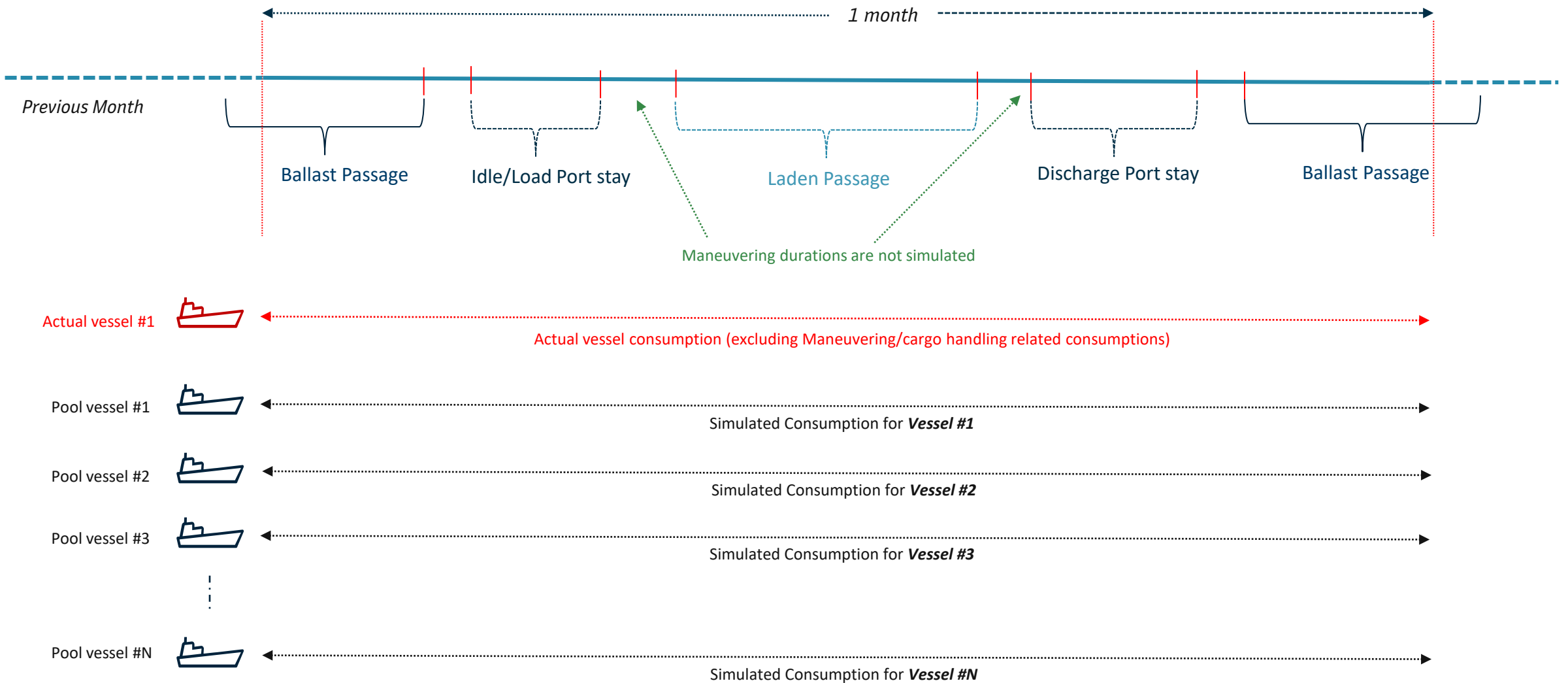
FIGURES FOR EXAMPLE ONLY

Contact us to learn more!
management.services@maersktankers.com



The new model – and how it is calculated

Bunker Adjustment General Principle

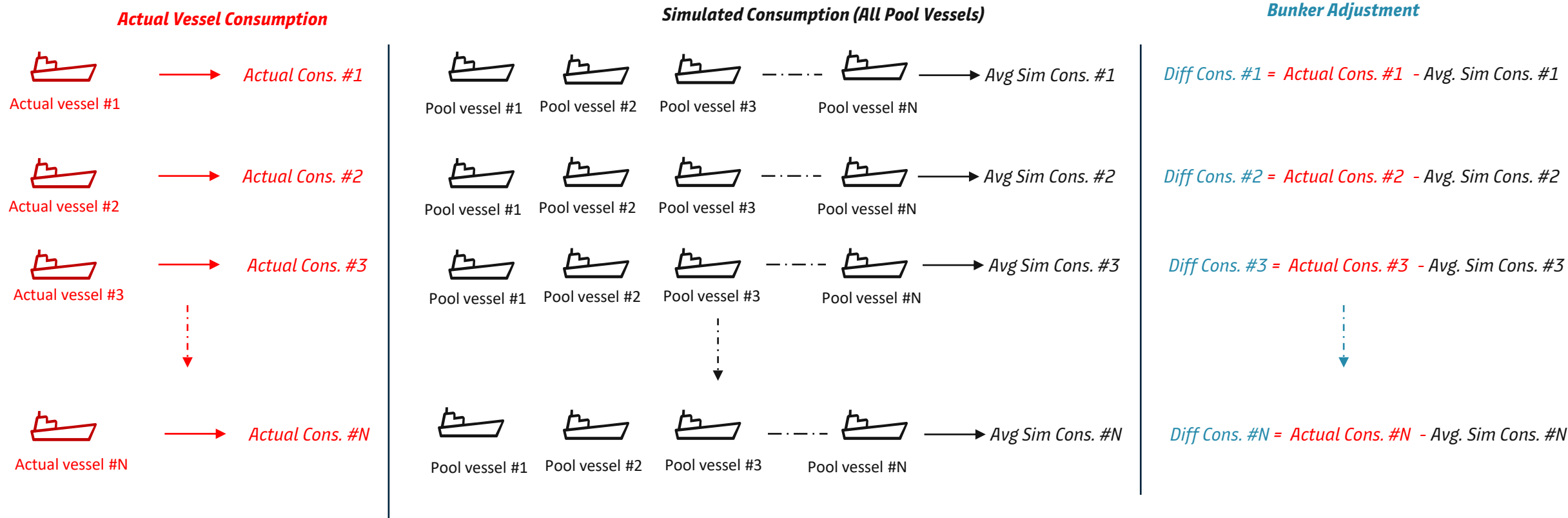


Bunker Adjustment [MT] : Actual Vessel Consumption [MT] – Avg. simulated consumption of all Pool vessels [MT]

Bunker Adjustment Core Principles – Assumptions for Simulation

For Actual and Simulating the Voyage on all Pool vessels below assumptions applied:

- Normalized LCV for all fuel types
- Same Cargo Quantity
- Same weather faced (based on Hindcast weather condition)
- Same Voyage Profile/Activity Level
- Same Speed

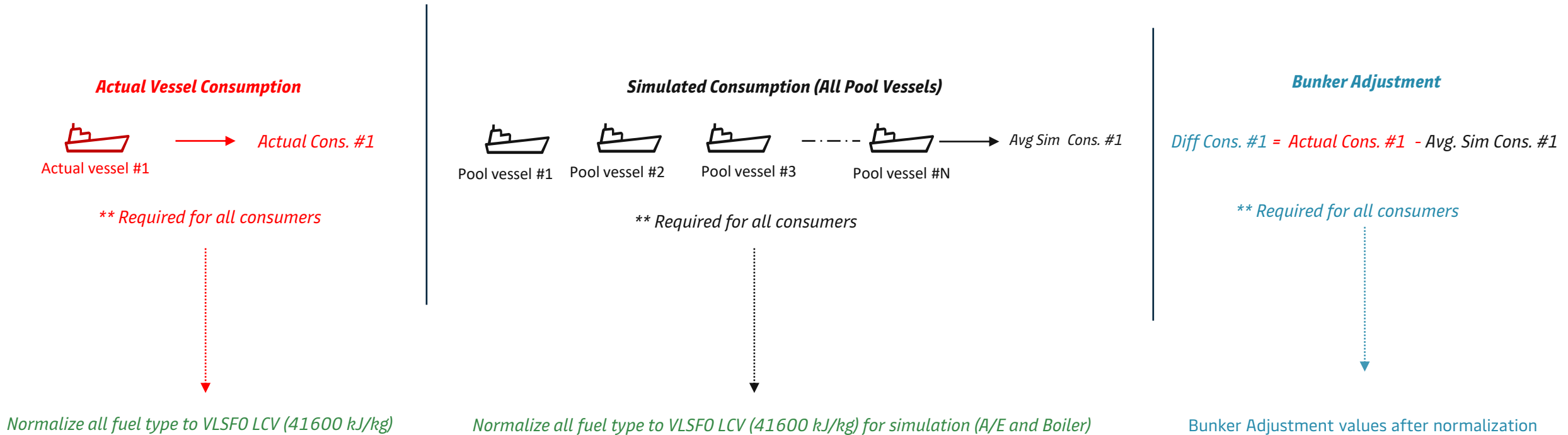


***Bunker Adjustment: the normalized difference between Actual and Simulated Pool Consumption, this is to make it a Zero Sum overall. The normalization is the zero-correction factor to ensure that actual bunker consumed in a month is equal to the total simulated consumption.*

Bunker Adjustment Core Principles – Normalization for LCV

At Sea Cons.
At Port Cons.

- Energy Content of each fuel type is different
- All fuel must be normalized to a standard value to make it level playing field.
- Default Fuel for the pool is VLSFO, all fuels should be normalized to the LCV value of VLSFO



Formula for normalization:

$$ME_{FC} = \frac{ME_{FC-Reported}}{41600 \text{ kJ/kg}} \cdot LCV_{Reported}$$

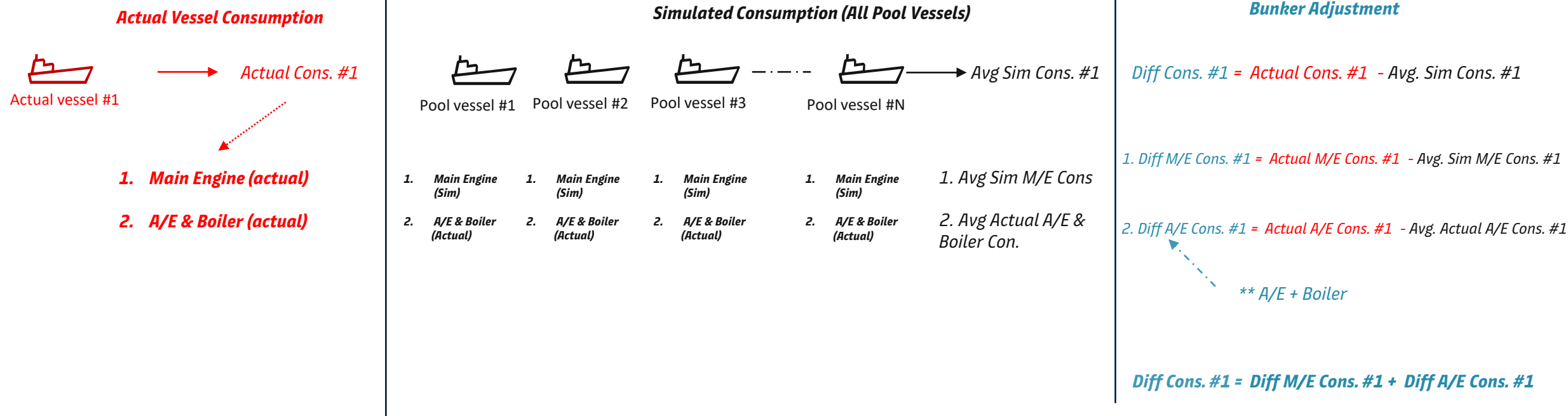
** Avg VLSFO LCV = 41600 kJ/kg

***if LCV value missing use default 41600 kJ/kg

Bunker Adjustment Core Principles – Split the simulation for M/E and A/E & Boiler

AT SEA CONS.
(Ballast & Laden)

- Simulation is based on (M/E & Shaft Generator) and keeping the A/E & Boiler consumption based on Actuals.



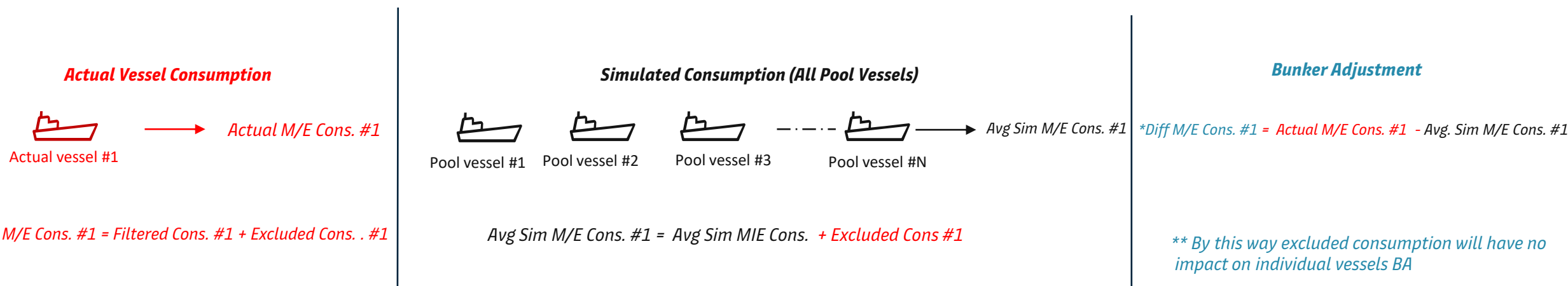
** For At sea A.E and Boiler consumption, actual consumption (after cargo consumption deductions) are sufficient for BA. The same amount as of cargo related consumptions is added on the simulated consumptions of the vessel to neutralize the impact on final calculations.

*** A/E and Boiler will be handled based on Actual compared against the actual Pool Avg.

Bunker Adjustment Core Principles – Filtration Scheme/Exclusions

AT SEA CONS.
(Ballast & Laden)
Propulsion

- Certain conditions will not be simulated as the results of simulations cannot be trusted for these conditions.
- This includes extreme bad weather, currents, small costal voyages, maneuvering, extreme high speeds etc.



** By this way excluded consumption will have no impact on individual vessels BA

**** In case of Idle Period exemptions only M/E consumption can be excluded, keeping the A/E & Boiler consumption inside BA purview

Environmental (Hindcast data)

Beaufort = 6
Wind and Waves A report is only considered for the evaluation, if the wind and wave observations have been in average below or equal to BF 6

Log Factor (Current) Max. +/-10% of speed impact through currents, reports with higher impact of currents on speeds will be exempted.

Vessel Observation (Sea reports)

Report duration Min. 10 hours

Vessel Speed Min. 9 knots

Vessel Speed Max. 15.0 knots

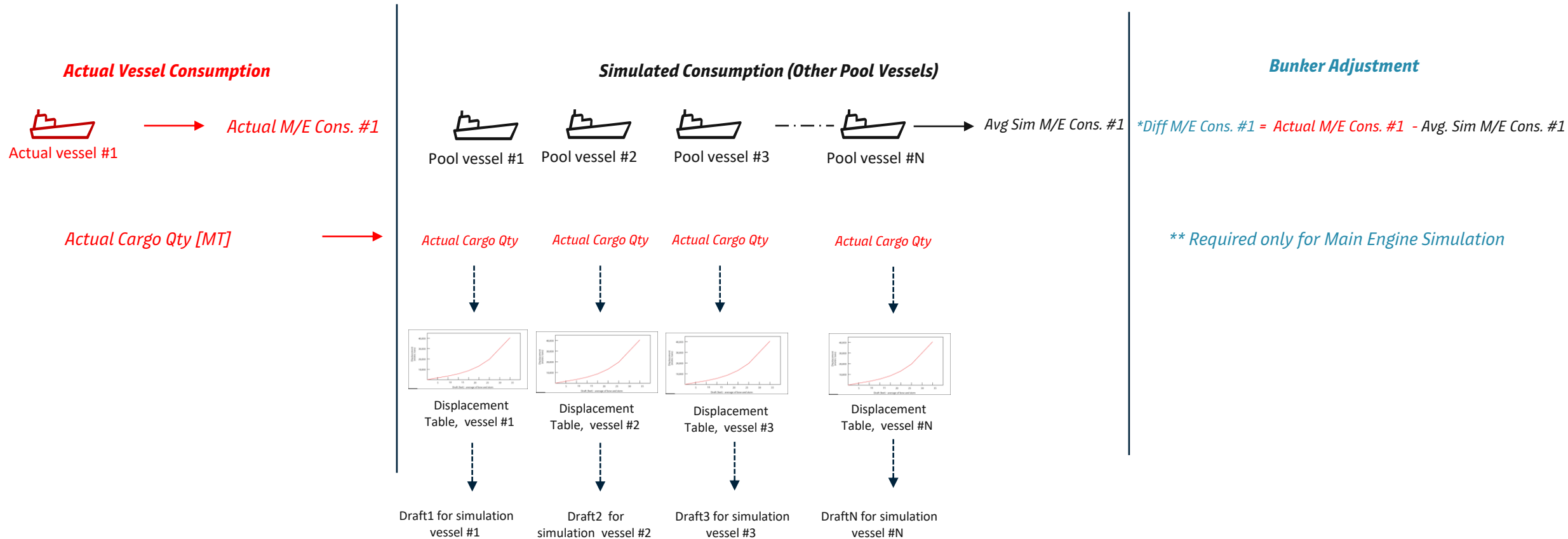
** For exempted reports the same consumption will be added to the simulated numbers for the vessel to neutralize the impact of these reports.

****Objective is to reduce the exclusions to zero over time

Bunker Adjustment Core Principles – Same Cargo Quantity

AT SEA CONS.
(Ballast & Laden)
Propulsion

- The model will use the actual Cargo Quantity [MT] from the Vessel to Simulate the Voyage on all Pool vessels using the Same Cargo Quantity
- The model will use displacement tables to get the drafts for Other Pool Vessels
- For ballast voyages the model will simulate basis average ballast draft for pool vessels over past 6 month

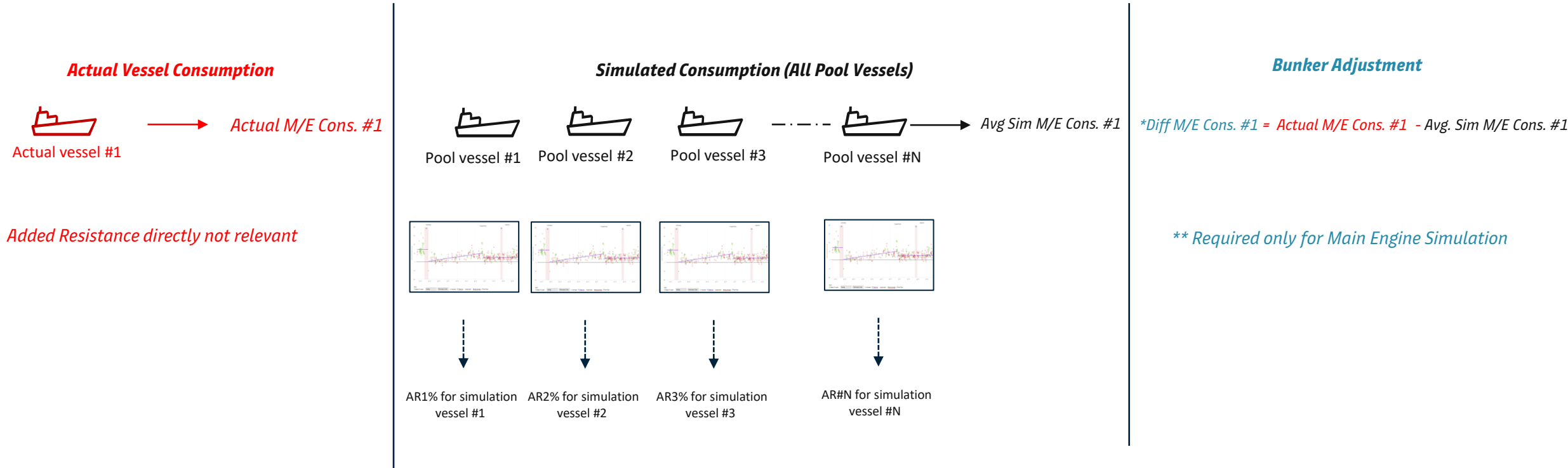


** Always use even Keel for simulation (No Trim), if the actual vessel is any doing Trim optimization, it will show as a benefit for her.

Bunker Adjustment Core Principles – Added Resistance

AT SEA CONS.
(Ballast & Laden)
Propulsion

➤ **Added Resistance Value** is needed for each vessel for simulation, the added resistance is calculated by VPS on monthly basis.



Formula for calculation:
$$AddedResistance_{BA} = \frac{\sum_{i=1}^n AddedResistance_i}{n}$$

In the new model we calculate simulated consumptions by also applying added resistance

Your vessel

- **Vessel A:** 15.8 MT-12.9 Knots- BF5 – 39000 Dwt

We use the same speed, weather and cargo quantity to simulate other pool vessels' consumption on the same voyage, but the current added resistance of each pool vessel is applied. LCV normalization is still applied.

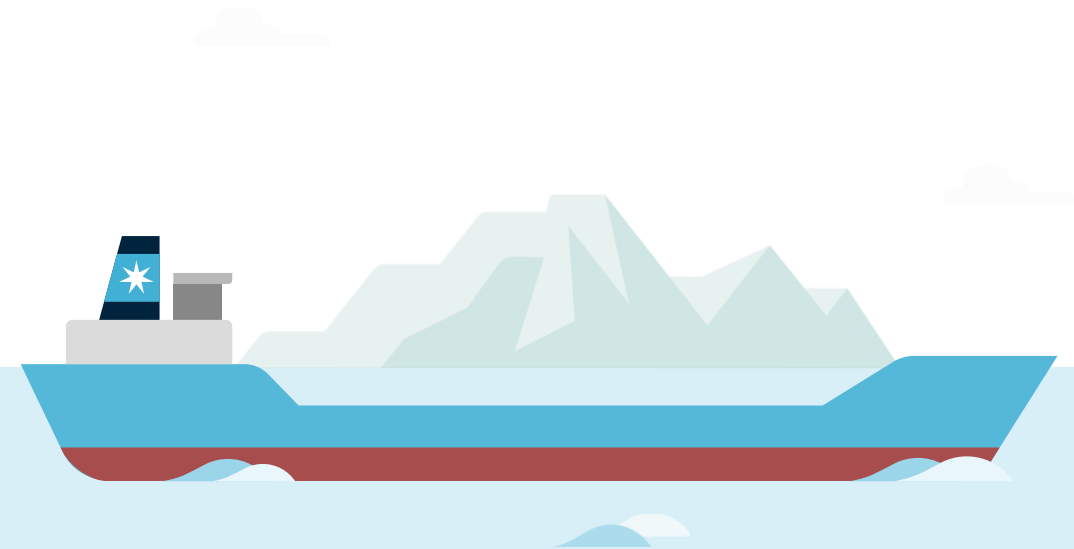
Other pool vessel simulation

- **Vessel A (35% AR):** 15.6 MT
- **Vessel B (15% AR):** 14,7 MT
- **Vessel C (28% AR):** 15,4 MT
- **Vessel D (45% AR):** 16 MT
- **Vessel E (60% AR):** 16.8 MT
- **Vessel F (56% AR):** 16.5 MT
- **Vessel G (67% AR):** 17.3 MT
- **Vessel H (14% AR):** 15.2 MT

Bunker adjustment = Virtual vessel – Actual vessel

Bunker adjustment = Average (Vessel A:Vessel B:Vessel C:.....Vessel I) – Vessel A

Bunker adjustment = 15.94 – 15.8 = 0.14 MT

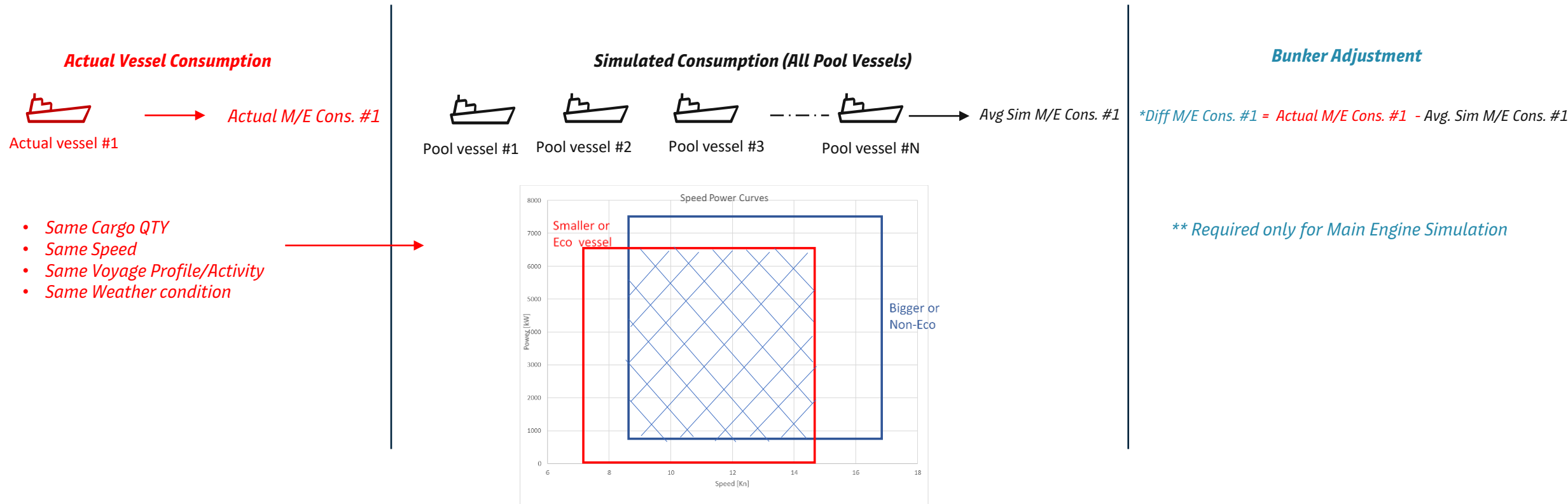


Further in this methodology there is no fixed profile and vessels bunker adjustment is calculated on vessels individual profile.

Bunker Adjustment Core Principles – Exception Handling

AT SEA CONS.
(Ballast & Laden)
Propulsion

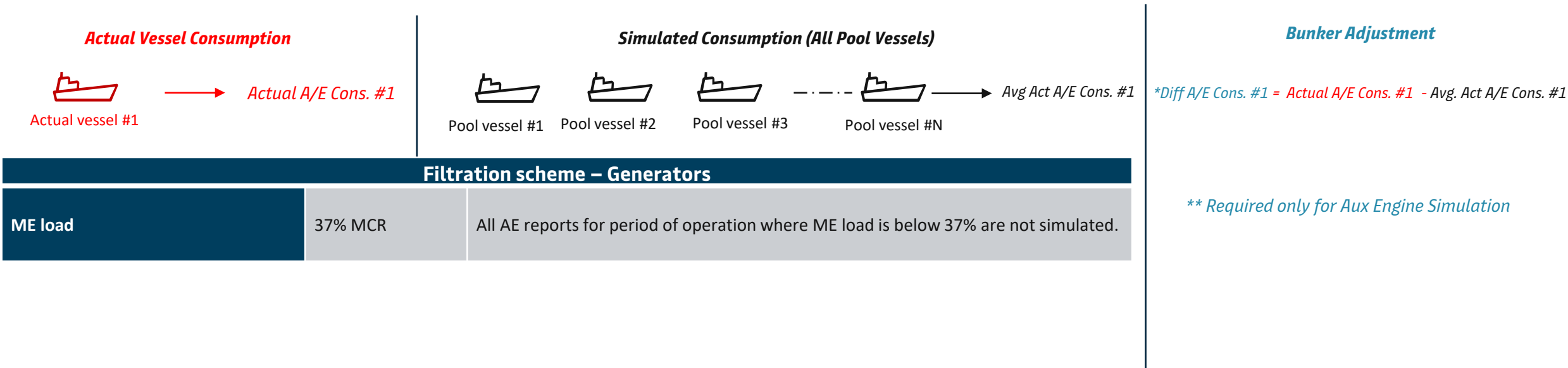
- The consumption of all non-simulated reports will be added to the vessels simulation to neutralize any financial impact.



Bunker Adjustment- Filtration Scheme A/E

AT SEA CONS.
(Ballast & Laden)
A/E

➤ Generator fuel consumption is impacted by different factors, all Cargo related consumption needs to be subtracted



Formula for calculation:

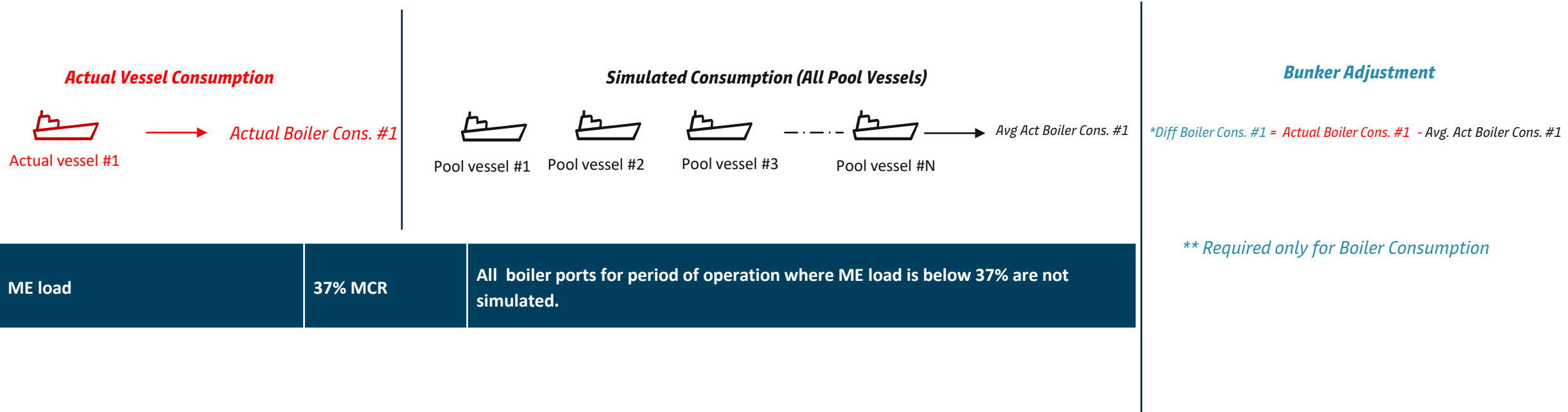
$$AECons_{BA-Sea} = \frac{\sum_{StartDate}^{EndDate} AECons_{Report} \cdot ReportPeriod}{\sum_{StartDate}^{EndDate} ReportPeriod}$$

**The amount equal to filtered consumption will be added to individual vessel simulated consumption to neutralize the effect on Bunker Adjustment of the vessel.

Bunker Adjustment- Filtration Scheme Boiler

AT SEA CONS.
(Ballast & Laden)
Boiler

- Boiler fuel consumptions is impacted by different factors, all Cargo related consumption needs to be subtracted



$$\text{Formula for calculation: } \text{BoilerCons}_{\text{BA-Sea}} = \frac{\sum_{\text{StartDate}}^{\text{EndDate}} \text{BoilerCons}_{\text{Reported}} \cdot \text{ReportPeriod}}{\sum_{\text{StartDate}}^{\text{EndDate}} \text{ReportPeriod}}$$

**Note: The boiler consumption at sea is expected to be very small..

Bunker Adjustment- Flow for Propulsion Cons. Calculation

AT SEA CONS.
(Ballast & Laden)

Step 1: Correct LCV for all fuel types to VLSFO



Step 2: Segregate M/E to Simulated and non-simulated consumption



Step 3: Calculate M/E Excess Cons. Based only on simulated consumption



Step 4: Calculate A/E & Boiler Excess Cons based on Pool Avg Cons. logic

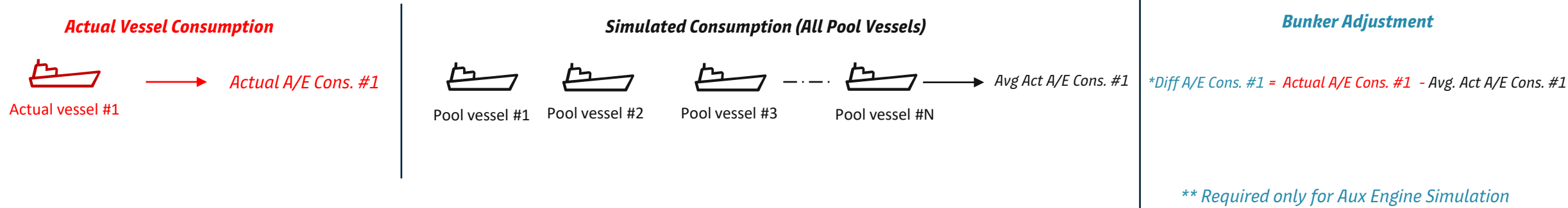


Step 5: Add M/E Excess and A/E & Boiler Excess to arrive at BA Propulsion Excess

Bunker Adjustment- Filtration Scheme A/E

AT PORT CONS.
(Idle & loading)
A/E

➤ Generator fuel consumption is impacted by different factors, all Cargo related consumption will not be simulated.



Filtration scheme – Generator port		
ME cons in port/idle	0.5 t/24h	Only reports with ME consumption less than 0.5 MT/24 hours will be considered
Report Duration Filter (Max Duration)	36 hours	Reports with report period more than 36 hours will be filtered out

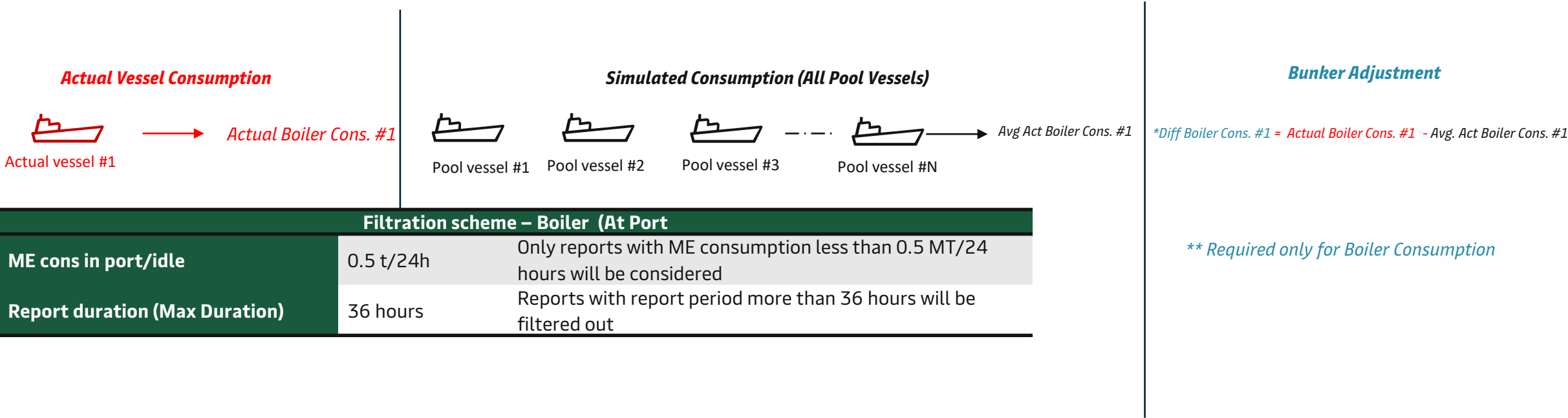
Formula for calculation:

$$AECons_{BA-Sea} = \frac{\sum_{StartDate}^{EndDate} AECons_{Report} \cdot ReportPeriod}{\sum_{StartDate}^{EndDate} ReportPeriod}$$

Bunker Adjustment- Filtration Scheme Boiler

AT PORT CONS.
(Idle & loading)
Boiler

➤ Boiler fuel consumptions is impacted by different factors, all Cargo related consumption will not be simulated.



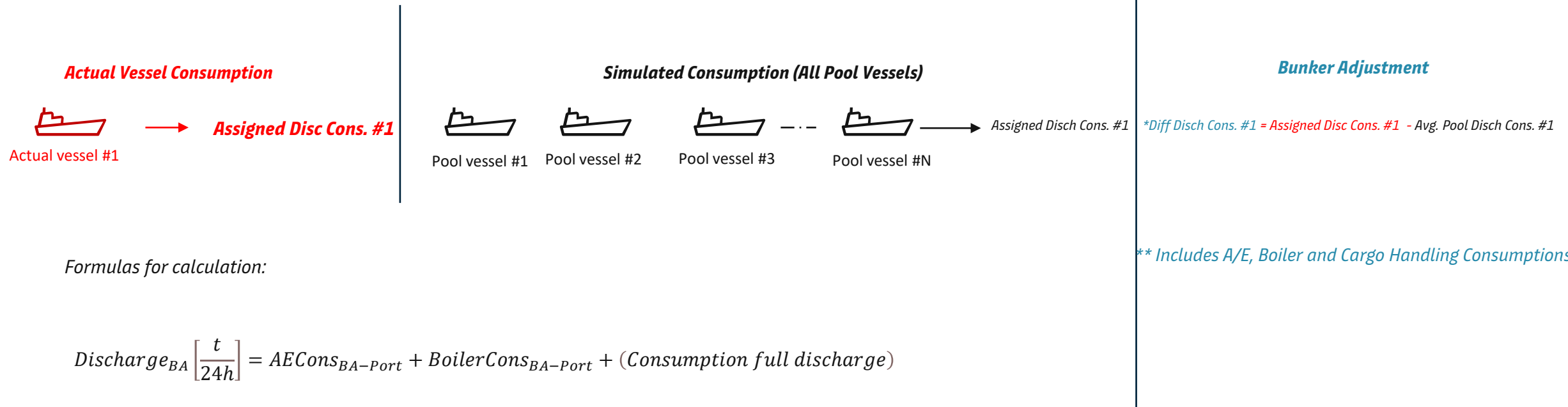
Formula for calculation:

$$BoilerCons_{BA-Sea} = \frac{\sum_{StartDate}^{EndDate} BoilerCons_{Reported} \cdot ReportPeriod}{\sum_{StartDate}^{EndDate} ReportPeriod}$$

Bunker Adjustment- Discharge Consumption

AT PORT CONS.
(Discharge)

- Discharge consumption of a full discharge operation which is carried out within 24 hours.
- (Consumption full discharge): This is a fixed figure based on the capacity and the technical equipment of a vessel.
- Each vessel is assigned a fixed Discharge Consumption, their A/E and Boiler Consumption are as per actuals



$$Discharge_{BA} \left[\frac{t}{24h} \right] = AECons_{BA-Port} + BoilerCons_{BA-Port} + (Consumption \text{ full discharge})$$

$$(Consumption \text{ full discharge}) = (Factor_{PumpingConsumption} + Factor_{IGConsumption}) \cdot \frac{Capacity}{10000cbm}$$

What you will see on InSite digital

InSite digital bunker adjustment page (1/3)

- After implementation of the new model, you will be able to see the bunker adjustment per vessel

DASHBOARD EARNINGS FORECAST REPORTS DOCUMENTS CALENDAR MAP NEWS	Dashboard > Earnings > Intermediate Bro Alma		Earnings Payout Pool Points <u>Bunker Adjustment</u>		
		ON-HIRE DAYS DAYS	REPORTED BUNKER CONSUMPTION MT	VIRTUAL POOL VESSEL CONSUMPTION MT	DIFFERENCE MT
	LADEN	11.20 (38.7%)	291.61	277.71	13.89
	BALLAST	0.05 (0.2%)	0.49	0.47	0.02
	IDLE/LOAD	13.95 (48.1%)	112.61	46.82	65.79
	DISCHARGING	3.77 (13.0%)	38.40	86.55	-48.15
	Total June 2021	28.97 on-hire days	443.11	411.55	-31.56
Total difference between Bro Alma and Virtual Pool Vessel for June 2021					-31.56 mt

InSite digital bunker adjustment page (2/3)

- After implementation of the new model, you will be able to see the bunker adjustment per vessel

 DASHBOARD

 EARNINGS

 FORECAST

 REPORTS

 DOCUMENTS

 CALENDAR

 MAP

 NEWS

 FAQ

Dashboard > Earnings > Intermediate | Bro Alma

TOTAL BUNKER ADJUSTMENT FOR JUNE 2021

Bunker Adjustment for June 2021

- \$ 14,307.41

Previous period adjustment

+ \$ 282.17

Total Bunker Adjustment for June 2021

- \$ 14,025.24

BUNKER ADJUSTMENT FOR JUNE 2021

Bunker basket price for June 2021 (\$/mt)

\$ 453.34

Total difference between Bro Alma and Virtual Pool Vessel (mt)

x -31.56

Bunker Adjustment for June 2021

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- \$ 14,307.41

InSite digital bunker adjustment page (3/3)

- After implementation of the new model, you will be able to see the bunker adjustment per vessel

DASHBOARD

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Dashboard > Earnings > Intermediate | Bro Alma

BUNKER ADJUSTMENT FOR JUNE 2021 PER DAY

Bunker Adjustment for June 2021

- \$ 14,307.41

On-hire days in June 2021

/ 28.97

Bunker Adjustment per day

- \$ 493.86

ADJUSTMENT FOR PREVIOUS PERIOD

Previous period adjustment

\$ 282.17

On-hire days in June 2021

/ 28.97

Previous period adjustment per day

\$ 9.74

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25

 **MAERSK**
TANKERS

Key takeaways

OVERVIEW OF REPORTED CONSUMPTIONS

The new methodology further enhances the transparency of the BA. It will so, as the owners will be able to compare against the actual reported consumptions from their vessels on daily basis.

OVERVIEW OF ROI ON DRY-DOCKING AND HULL CLEANING

Instead of 6 months rolling, we will use the monthly data for calculation of BA. This will ensure that owners see return on investment for dry-docking and hull cleaning straight away.

INCREASED FOCUS ON ACCURATE REPORTING

Since every single ton reported from the vessel is considered in the new methodology, it becomes essential that vessels are paying proper attention and reporting correctly.

IN CASE OF EXTREME WEATHER CONDITIONS ETC.

For those instances where we cannot simulate confidently – due to extreme weather conditions or speed limits, we will add the same consumption to vessels simulated numbers to neutralise the impact.

IN CASE OF NON SIMULATED REPORTS

For all non simulated reports due to cargo related activities etc. the same consumption will be added to simulated numbers to neutralise the impact.

PREPARING FOR THE FUTURE

The new methodology will serve as a building block on top of which further enhancements can be made to prepare solutions for upcoming regulations such as CII.

A fair and robust Bunker Adjustment Model

for smooth transitions to new regulations

Parameters 	Previous model 	New model 	Change will result in 
 Weather data (Hindcast data)	All vessels evaluated on fixed weather condition (BF4)	Vessels will be evaluated on actual weather conditions during voyage (up to BF6)	No normalisation - increased transparency on calculation
 Performance	1.Fixed speed 2.Fixed vessel activity profile	1.Actual speed 2.Actual vessel activity profile	No normalisation used (only fuel LCV)
 Vessel reporting (For BA Calculation)	6 months rolling period	Monthly	Clear link between monthly financial results and vessel performance
 Performance incentive	Positive impact of DD and hull cleaning only visible after 2-3 months	Positive impact of DD and hull cleaning visible immediately	Faster ROI on vessel performance
 Scrubber bonus	Fixed vessel activity profile	Actual vessel activity profile	Potential rise in scrubber bonus
 Financial setup	Paid twice a month	Paid twice a month	No Change
 Reporting	Normalisation of data on various parameters	Minimal normalisation	Increased transparency between vessels' reported consumption and Bunker Adjustment
 Third party verification	Lloyd's Register verification	Lloyd's Register verification is being worked upon	No Change
 Adaptability for new regulations	Less adaptable to upcoming regulations for e.g., CII & EEXI due to standard conditions normalization	Can easily adapt to upcoming regulations for e.g., CII & EEXI	Smoother transitions to new regulations



A fair and robust Bunker Adjustment Model

for smooth transitions to new regulations

Parameters	Previous model	New model	Change will result in
 Vessel Reporting (For added resistance calculation)	6 months rolling period	As per current performance data	Reliable hull condition used for simulations
 Prior period adjustments	Up to 6 months, account closed twice a year	Up to 6 months, account closed twice a year	No change (PPA for two models will not be mixed, new model to start with a clean slate)
 Data Collection	Semark	Semark (for now)	MT is working on a new reporting tool which will further increase the reporting quality from the vessels.



Q&A

Thank you for your attendance.

We look forward to receive your queries and comments.