EEDI Phase III for VLCC
What is possible?

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INTERTANKO

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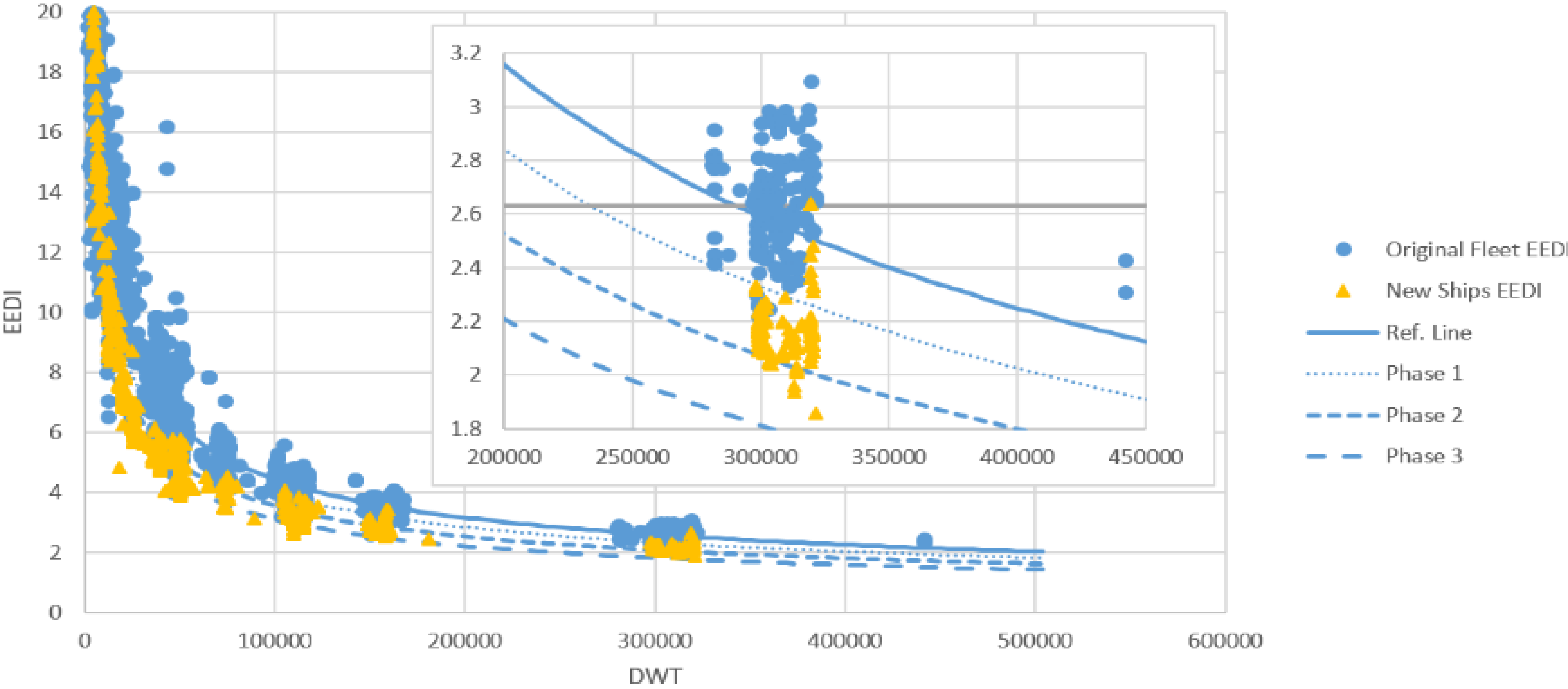
THE PROBLEM

EEDI reference line regression was drawn below most of the baseline data instead of through the mean line



EEDI values of old & new VLCCs

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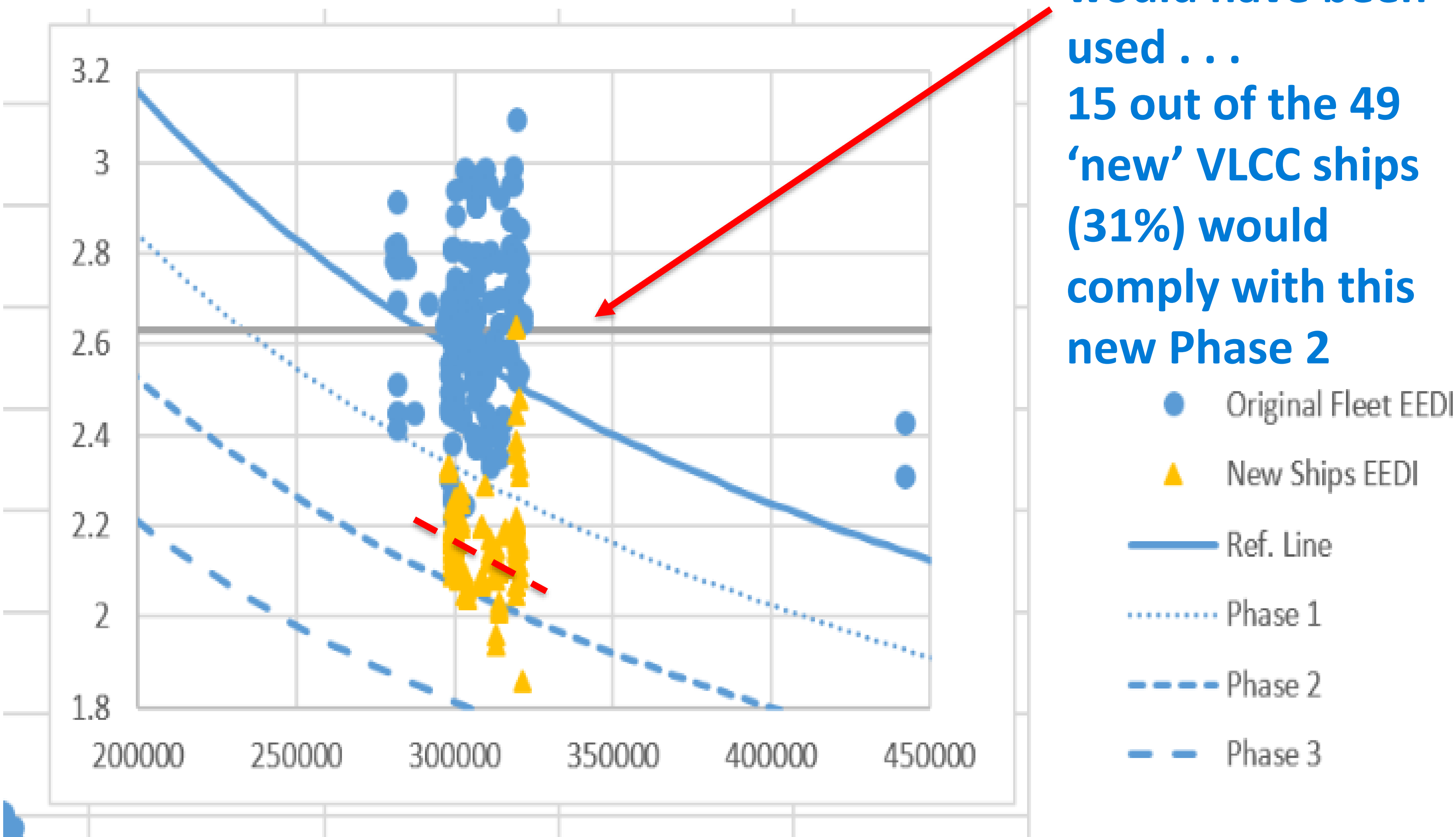
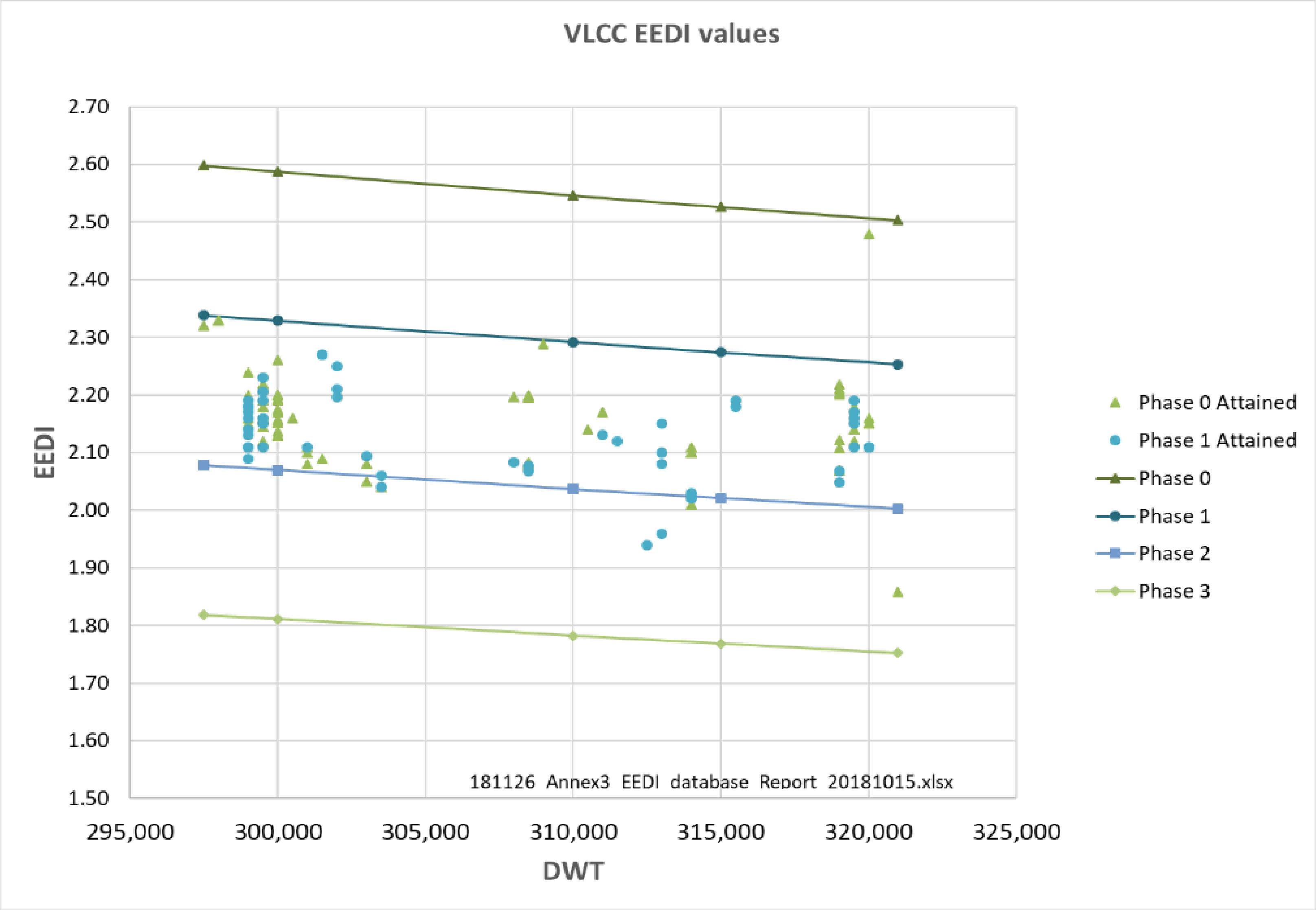
69% of the VLCC EIVs above the base line drawn

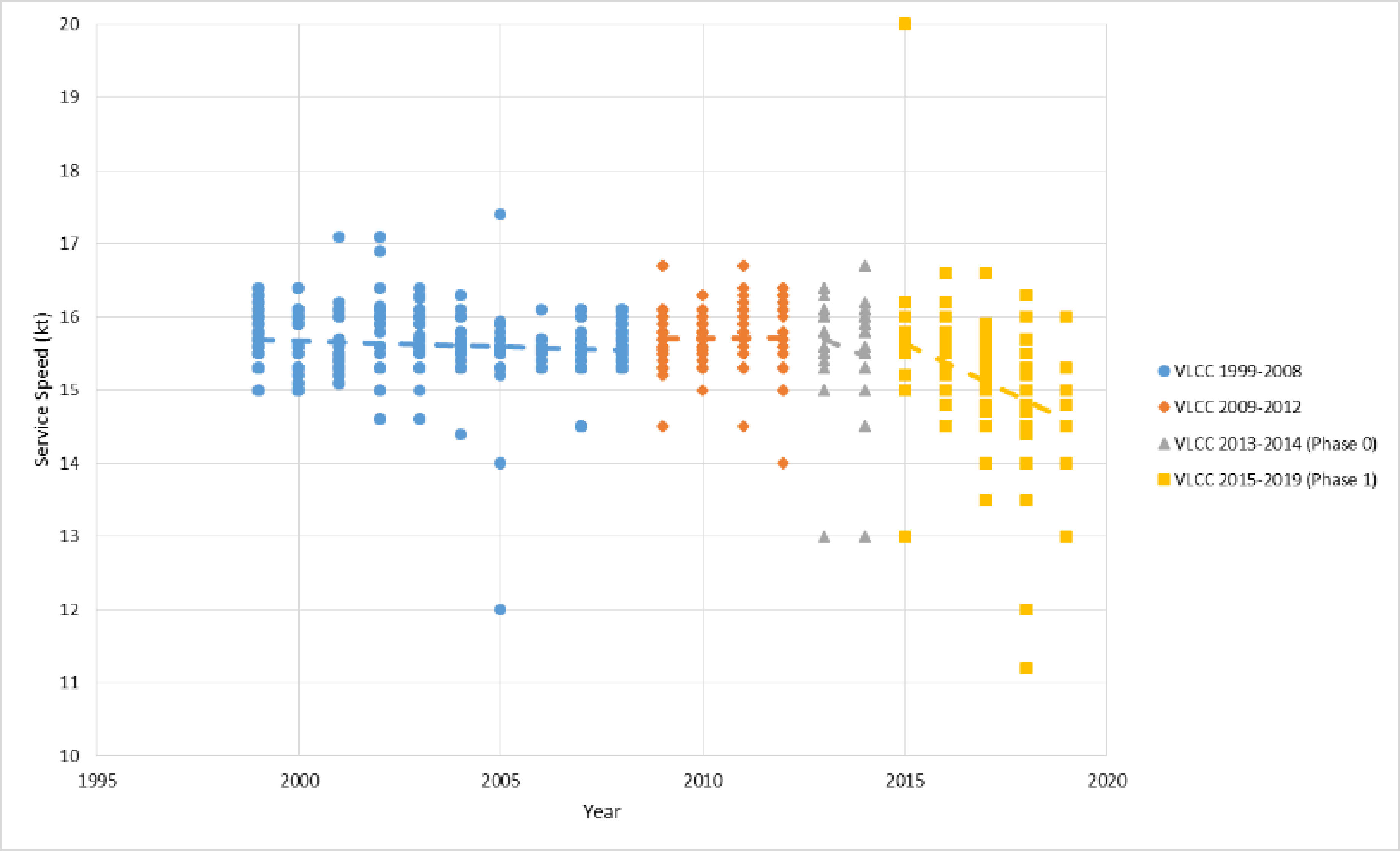


If average line would have been used . . .
15 out of the 49 'new' VLCC ships (31%) would comply with this new Phase 2

EEDI values of new VLCCs



IHS data on Service Speed for VLCCs



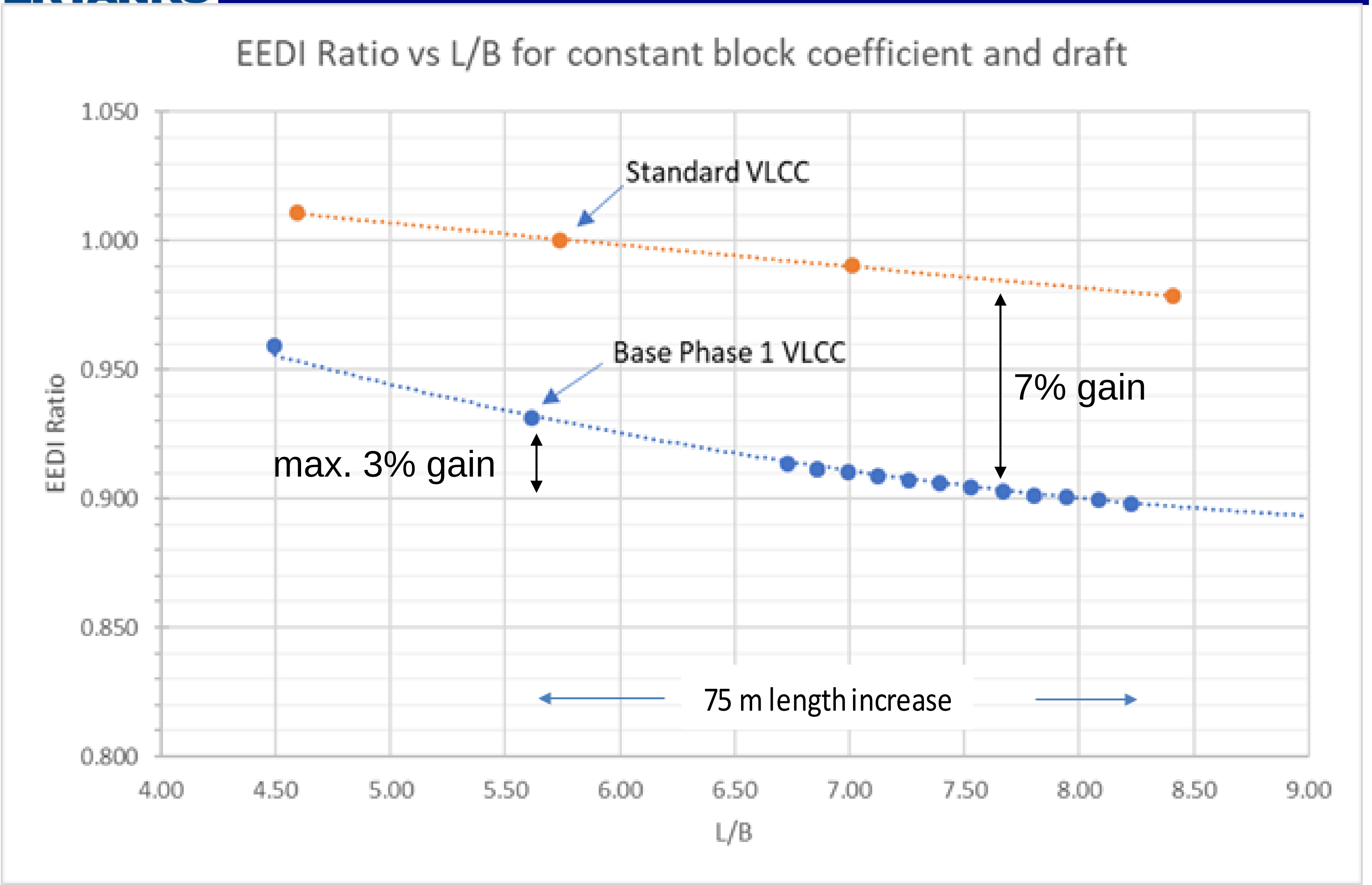
Influence of Speed Design on EEDI

VLCC EEDI Phase I Tanker						
Design speed	kn	12.8	13.8	14.8	15.8	16.8
Speed reduction	kn	- 3	- 2	- 1	standard	1
EEDI		1.73	1.95	2.17	2.31	2.63
EEDI Reduction (%)		- 25%	- 15%	- 6%	0%	+ 14%
Required Engine Power (MCR)	kW	14,884	18,183	21,717	24,986	30,258

Speed reduction between 2 and 3 knots would achieve EEDI Phase 3 requirements.

However, minimum power requirements would not be met

Effect of L/B on EEDI



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Influence of Cb on EEDI

				standard		
VLCC Cb at design draught		0.80	0.81	0.82	0.83	0.84
Summer load draught	m	22.05	22.05	22.05	22.05	22.05
DWT @ Load Line draught	t	295.966	298,997	303,032	307,070	311,109
Design speed 15% S@90% MCR	kn	15.8	15.8	15.8	15.8	15.8
Required engine power	kW	26,240	26,476	26,736	27,026	27,356
Speed @ SLL & 75% MCR	kn	15.50	15.49	15.49	15.48	15.47
Calculated EEDI						
Design Index		2.55	2.54	2.53	2.52	2.52
Baseline Index		2.61	2.59	2.58	2.56	2.54
Difference from Baseline (%)		- 2.4%	- 2.1%	- 2.0%	- 1.4%	- 0.8%
% Change vs standard design		- 0.4%	- 0.1%	-	0.6%	1.2%

Achievable Savings beyond Phase 1

Energy Saving Devices	Achievable Savings beyond current Phase 1
Wake-Equalizing Devices	0% (not compatible with Pre-swirl devices)
Waste Heat Boilers	0% (0.5% assumed included in Phase 1 design)
Pre-swirl Devices	0%(generally 3-4% savings on poor performer)
Post-swirl Devices	0% (generally 3-4% savings on poor performer)
High Efficiency Propellers	1% (generally up to 5% savings on poor perf.)
Hull Optimization	0% (up to 7% assumed included in Phase 1 design)
Hull Dimensions	3% (longer and finer hull form)
Renewable Energy, Wind	2%
Skin Friction Reduction	0% (solutions not validated/commercially ready)
Hybrid Propulsion	(alternative, non carbon fuels not considered)
∑ Achievable ESD Savings	6%

CONCLUSIONS

Large tankers are more efficient in gCO_2/mt-nm than smaller tankers

Tanker size	in gCO_2/mt-nm
VLCC	6.8
Suezmax	8.7
Aframax	10.7
Panamax	18.4

VLCC being severely challenged may fall out of use in favour of smaller tankers

Just to have an equivalent emission footprint as the VLCC, the Suezmax must improve by 20%

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CONCLUSIONS

INTERTANKO submits the assessment at MEPC 75 as an information paper with a cover note indicating that:

- INTERTANKO does not propose a modification of the EEDI Phase 3 requirements
- INTERTANKO informs MEPC 75 that, according to the assessment provided, there are serious challenges for future VLCCs to meet EEDI Phase 3

These data and conclusions are presented to the 2019 Tripartite inviting designers and shipyards to make an effort and find a successful outcome

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