

Ro-Ro Quantifying the benefits of applying in erection stage

Ro-Ro **Total cost of ownership and payback period**



					Comparing the scenarios			
		Appli	cation scenarios					
		Hempaguard NB (Erection Stage)	Hempaguard X7 (Post-Delivery Docking)	Hempaguard X7 (Pre-Delivery Docking)	SPC***	Hempaguard NB vs SPC*** (Erection Stage)	Hempaguard X7 vs SPC*** (Post-Delivery Docking)	Hempaguard X7 vs SPC*** (Pre-Delivery Docking)
Paint Cost NB Yard Cost	Paint Purchase Cost	\$250,000	\$250,000	\$250,000	\$110,000	\$140,000	\$140,000	\$140,000
	Paint Application & Washing Cost	\$95,000	\$100,000	\$95,000	\$0	\$95,000	\$100,000	\$95,000
	General S/Y Cost	\$0	\$70,000	\$70,000	\$0	\$0	\$70,000	\$70,000
	Potential Mark-up Cost	\$0	\$20,000 - \$50,000*	\$100,000 - \$500,000**	\$0	\$0	\$20,000 - \$50,000*	\$100,000 - \$500,000**
	Diver Cost	\$0	\$0	\$0	\$2,250			
	Extra Costs Next DD	\$0	\$0	\$0	\$3,500	(\$2,250)	(\$2,250)	(\$2,250)
Cle	Additional Fuel Consumption	\$0	\$0	\$0	\$65,000	(\$3,500)	(\$3,500)	(\$3,500)
-						(\$65,000)	(\$65,000)	(\$65,000)
Fue	Total Cost of Fuel	\$24,000,000	\$24,000,000	\$24,000,000	\$26,700,000	(\$2,700,000)	(\$2,700,000)	(\$2,700,000)
тсо	Total Cost of Ownership	\$24,345,000	\$24,440,000 - \$24,470,000	\$24,515,000 - \$24,915,000	\$26,880,750	(\$2,535,750)	\$(2,440,750) - \$(2,410,750)	\$(4,409,000)- \$(3,909,000)
					Total Savings \$	\$2,535,750	\$2,440,750- \$2,410,750	\$2,365,750- \$1,965,750
					Expected Payback Period (Months)	8	11-12	14-27

Assumptions: Ro-Ro Vessel ~12,000 GT, Consumption: 30t/day, Speed: 15 knots, Fuel Price: \$650/t

* Sea Trial cost for 3rd party management and fuel consumption

• ** Potential Mark-up S/Y Cost depends on the s/y location and has to do only for pre-delivery docking

• *** SPC Product with 2.5% speed loss for 5-years



Ro-Ro Hull coating upgrade: Expected efficiency improvement



Paint System Description	Seamflow	Out of Dock Power Gain %	Surface Preparation %	Speed Loss %	Out of dock & Surface Preparation Diff%	Overtime Power Savings %	Total Fuel Savings %
Full • Hempaguard NB		6.00	0.00	1.40	6.00	3.30	9.30
Full • SPC		0.00	0.00	2.50	0.00	0.00	0.00



Ro-Ro Increase vessel performance according to CII/EEDI





Coating system	2025	2026	2027	2028	2029	2030
Hempaguard NB + ESD	26.5 (C)	23.59 (B)	24.03 (C)	24.48 (C)	24.92 (D)	25.37 (D)
Hempaguard NB				25.80 (D)	26.25 (D)	26.69 (D)
SPC + ESD				26.77 (D)	27.56 (D)	28.36 (E)

CII difference from reference year



Impact on Vref for purpose of EEDI



Reducing emissions for your newbuild RO-RO

Comparing Hempaguard to traditional SPCs





Assumptions: Vessel ID: RO-RO 4200 CEU Flat bottom m2: 4,400 / Vertical bottom m2: 3,900