June 2025

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THE EVOLUTION OF PROPELLER SHAFT LINES

THE ELIMINATION OF THE STERN TUBE

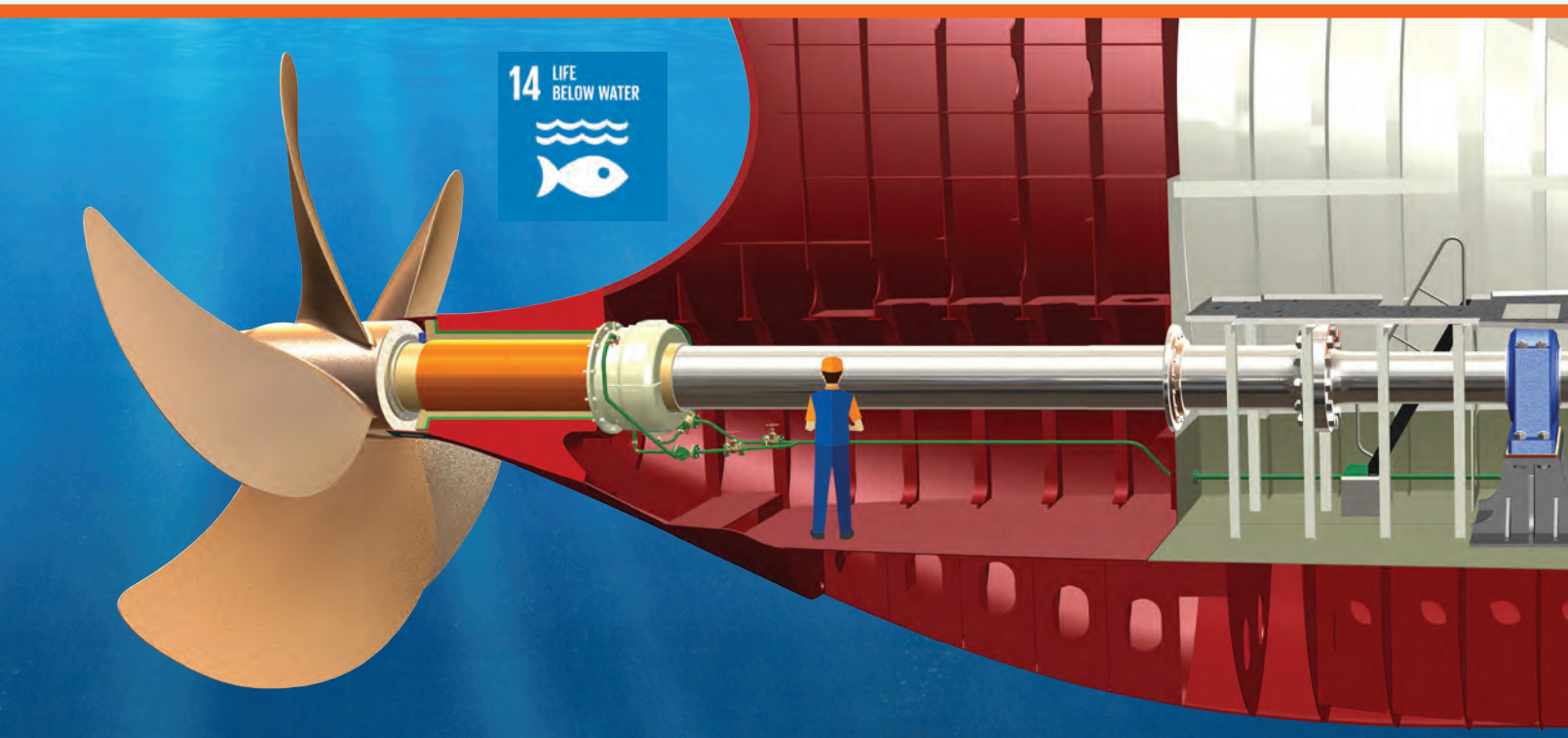

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Photo Justin Zurre

For as much coverage as the trade press [present company included] pays to energy transition, future fuels, and electrification, a neophyte to the industry might assume that it is the norm rather than the exception. Anyone working on the waterways knows it is the opposite, and that diesel fuel still is, and will remain the primary fuel in maritime for many years to come. But change is underway, and the number of installations of hybrid dual fuel, alternative fuel and pure electric solutions continues to grow.

Last month we caught up with **Ed Schwarz**, Siemens Energy, for insights from his point of view the path and pace of change. Siemens Energy had its hands and tech on a signature pure-electric pioneer vessel – the Norwegian ferry **Ampere** – which recently celebrated its 10th anniversary of operation. But the conversation with Schwarz went far beyond the Siemens Energy technology, as his experience to *'electrify everything'* spans more than 20 years. In particular, we asked and he offered some salient, grass roots advice to vessel owners that are considering making the investment in hybrid or pure electric solutions, as well as insights on the cost differential and some 'do's and don'ts' to consider at the planning stage. Our story ***Charge It: 'Electrification' Momentum Mounts in Maritime*** starts on page 32.

One factor that has kept me in this maritime editor's chair for more than 32 years is scouting and reporting on some of the off-grid, unique maritime solutions that pop up because necessity truly is the mother of invention.

Our Australian-based technical writer **Wendy Laursen** this month writes the cover-story, presenting insights on the development, delivery and operation of Australia's unique enclosed self-discharging transhippers that are designed to ensure a dust-free supply chain for the Onslow Iron project Down Under. Designed in Australia, built in China and classed by ABS, read up on how Mineral Resources (MinRes) and its partners worked to design and build a unique supply chain that serves one of the largest iron ore projects under development in Australia.

Last, but certainly not least, I'm always happy to see **Bob Kunkel**, president of Alternative Marine Technologies and First Harvest Navigation, on our "Authors" page. If you don't know Bob, you should, as he's one of our cornerstone sources of information and insight minus the BS. Kunkel has vast experience with shipbuilding projects globally, and this month he takes a deep dive into U.S. shipbuilding and the renewed focus on this industrial sector since President Trump retook the White House earlier this year. In his "The Final Word" Op/Ed starting on page 42, Kunkel does not hold back with his assessment of the shipbuilding sector today, writing *"What may look like a Rip Van Winkle moment may actually be a four-alarm fire raised by current geopolitical events and our declining Naval power."* But that's not all, as he offers his take on the "U.S. Ships for America Act", specifically what the Ships Act is missing to achieve its ultimate goal: a rebirth of the U.S. shipbuilding and maritime sector.

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Disaster Response Lessons from Real Life ... *Sort of* ...

By Rik van Hemmen

There are a few stories that I often tell when the subject of leadership in disasters is discussed. I figured I'd put them down on paper so I can stop repeating myself.

It was pre OPA90, a single-skin tanker had run over a rock in the Port of New Jersey. It put a hole in the bottom, and heavy fuel oil was draining out the bottom and would do so until the oil head level in the tank would equalize with the waterline. The tanker would hit bottom at low tide, but the hole was small, and quick action would reduce oil in the harbor. Moreover, it is important to create a water seal in the bottom of a busted tank. People showed up quickly to help. A tank cleaning company, both famous and infamous, showed up, opened the tank dome, dumped in a pump, and started an over-the-top transfer to other tanks and a barge that pulled up.

About an hour into the process, we were making further pl*ans in the wheelhouse when a high-ranking representative of the NJ DEP showed up and loudly proclaimed, "I am in charge now, and nothing happens until I say so."*

The tank cleaning company team leader raised his handheld VHF and said, "Stop the pumps."

Next the DEP rep said, "So what are you going to do?"

*And the tank cleaning company team leader said, "I thought you were going to F@$*ing tell us." General laughter, the DEP rep slinked away and was never heard from again.*

There is so much to learn from this short story. You cannot be a leader if you don't know what is going on. Also, in a technical setting, bravado will always end up in humiliation.

There are leaders who may show up without knowing what is going on, but the first thing you do is nicely ask for an update. This DEP guy did none of that. I wonder if he learned his lesson.

Next, I will shift forward in time a few years and I will be more specific since it played out in public. This story relates to BP's Deepwater Horizon blowout. There was a lot going on, but one news bit that showed up was a university professor who had done his own calculations on BP's estimates of the amount of oil that spewed from the wellhead and came up with a larger number. The reporters checked with BP and BP said that their estimate was correct and therefore the professor's estimate was wrong. A great way to create an enemy.

BP's disaster response was wobbly at best, but when I read that, I had full confirmation that BP knew nothing of disaster management. This was one of the few items that could be effectively put to bed and would remove one distraction in a disaster that had too many already.

Instead of insisting that the professor was wrong, the correct solution would be for BP to tell the reporter, "We appreciate the effort this professor has put in and will put him in touch with our technical team so we can compare numbers. Can you please provide me with his contact information?"

A BP rep could then contact this professor and ask him to come to the team tech center. If BP really wanted to show off, they could even provide him with a plane ticket or even a private jet.

The professor would be flattered and have no reason to badmouth BP. Once the professor presented his data, one of three things could happen. BP was right and the professor was wrong, and now BP knows how to defeat the professor's argument if he insists on further promoting it.

If the professor was right, BP now has the option to publish an update and publicly thank the professor or, let me be cynical for a moment, buy his silence. Regardless, BP now has more data and therefore can more effectively lead the disaster response.

Or they were both not sure what the real amount was, and BP can ask the professor to work with them in refining the data. The interesting part is that by inviting the professor to participate, BP removed external distractive noise in their disaster response and probably gained an ally.

And in disaster response, two things count more than anything else: control of the data and reduction of distracting noise. This generally occurs when the responders take a cooperative approach and minimize adversity.

One may ask, "Why did you see that so clearly whereas BP did not?" Well, generally you see those things when you have made the same mistake yourself before. But here I did not; I discovered this approach in an oil spill training exercise during QI training at Massachusetts Maritime Academy in the mid-1990s.

I was assigned the operations desk in the exercise. The spill notice came in, and we needed data. I opened the Area Response Plan, and it listed three helicopter operators for the area. I called the first operator (one of the game actors). He decided to give me a hard time and told me his field was fogged in. I was ready to hang up but then quickly asked for his rates. He said something like $1000 per hour and $100 per hour for standby, and he had two helicopters. I said, "Put me on standby for both your helicopters." I then called the second operator, who had one helicopter and could fly. I was ready to go to the field (a computer simulator) when I decided to call the third operator. He also had one helicopter, and I also put it on standby. For $400 per hour, I now controlled all the helicopters in the area. I don't know why I did it, but it seemed like a good deal. I could always drop the standbys in the next few hours. I took my first flight and started a response approach when I was called by a wildlife official game actor. He noted that the oil was drifting to a nesting area. By then it was time to take another flight, and I asked the wildlife official to join me to point out exactly what he needed. At that cooperative level, I killed (or actually saved) two birds with one stone. Moreover, once reporters called, I could control their helicopter rides at will and embed them in the effort to make sure I reduced distractions and kept control of the data.

What is most interesting is that I learned that tactical nugget in training and not by embarrassing myself in the field. There is a wide variety in the quality of these exercises. Unfortunately, only the best exercises are those where new approaches are discovered, and quite frankly, we need more of them.

For every column I write ***MREN*** will make a donation to a charity of my choice. For this column I nominate Massachusetts Maritime Academy. https://www.maritime.edu/alumni-friends/give Their QI training program was the gold standard in disaster response training.

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Marine Salvage and Wind Farms

By James Herbert, *Secretary General, International Salvage Union*

Marine salvage is a risky business financially and physically and is governed by complex legal systems, frameworks, and conventions. Over the past two decades the industry has contracted and has consolidated in response to changes which have meant there are fewer marine casualties. That has not been easy for commercial salvors - the members of the International Salvage Union - but improvements in maritime safety that prevent loss of life, loss of property, and damage to the environment are to be welcomed.

Professional commercial salvors are often the only agency available to respond to marine casualty. In some parts of the world there is some state provision through contracted emergency towing vessels - ETVs - which are stationed in strategic locations and kept at readiness to intervene if necessary.

It is sometimes forgotten that the most important matter when dealing with a casualty is saving life and salvors have a proud track record of making interventions which have, over the decades, saved hundreds of lives. Many years ago, the next most important priority was saving property – the value in the hull and its machinery and the cargo carried. That remains at the heart of the salvage industry but protecting the environment is now more important than ever.

And there is another priority, which is to keep ports open and trade flowing. There have been a number of cases in recent years in which large containerships experienced incidents and became casualties either on the way in or out of major ports. Last year saw the case of the Dali and the Key Bridge at Baltimore where salvors worked to remove the bridge debris and then refloated the ship. In all these cases there was the very strong possibility of very lengthy blockages to key ports and waterways, trapping possibly billions of dollars of outbound cargo and requiring re-routing of the huge volumes of inbound cargo.

One area that is of increasing interest is the need to protect offshore wind installations and to be able to respond to incidents within and near to wind farms.

In the global drive for carbon reduction and an increase in the need for provision of renewable energy there has been a dramatic increase in the number of installations globally. The current politics means installations may have stalled in certain geographies and the economics of offshore wind is somewhat uncertain but the overall trend will surely be to see more and more installations in the years ahead. Currently there are some 150 Gigawatts installed in the US and worldwide, but that is set to rise to 500 Gigawatts by 2035.

And it is often the case that installations are close to major shipping routes, particularly in crowded areas like the North Sea. It means that the threat of a casualty vessel interfering with turbines, monopiles, jackets, inter-array cables, export cables, installations, and sub-stations cannot be discounted and indeed is taken seriously already.

The Netherlands for example already contracts with a com-

mercial operator to provide ETVs with a specific brief to be ready to intervene to protect designated wind farms off the Dutch coast.

And there have already been serious incidents. One case was in 2022 when ISU members Multraship and Smit Salvage acted as co-contractors to successfully salvage the adrift and abandoned bulk carrier JULIETTA D in the North Sea off the Dutch coast. The bulker went adrift when the anchor chain broke and collided with another vessel and then drifted through the wind farm Hollandse Kust and hit a recently installed offshore wind platform.

Salvors were winched aboard from a helicopter and were able to connect to a seagoing tug and the casualty was towed out to the open sea before later being brought safely to port.

The incident serves as a very real demonstration of the potential for damaging incidents and it does not take a stretch of the imagination to consider the possible consequences if the salvors had not secured a towing connection and the vessel was left adrift in bad weather among the turbines and associated infrastructure.

In another incident, in 2023, the cargo vessel Petra L struck a wind turbine off the north German coast and was badly damaged.

An additional consideration is that helicopter operations can be constrained within offshore wind installations due to the additional hazards. No helicopter operation in a casualty situation is simple but the additional concern and danger presented by the shafts and turbine blades is a consideration for handling a casualty within the area of a renewable energy installation.

Other operational challenges for the salvage industry include responding to lithium ion battery fires particularly on car carriers and RoRos as well as container ship fires which are a major concern for both salvors and insurers and work is underway at IMO to try to make progress on ship design and operations so that fires can be contained and dealt with more easily. The increasing size of vessels in many classes is also a concern.

As long as there is maritime trade there will be a need for salvage services. Shipping has become much safer and the number of incidents has declined but at the same time the scope for larger more complicated incidents has increased and we have seen this in reality.

The need for professional salvors around the world will not cease and they must be supported so that they can invest and prepare and have access to experienced and talented people to deliver what are often dangerous services in multiple fields and now increasingly in the context of offshore wind.

Image courtesy ABB

ELECTRIFYING THE SEAS: Permanent Magnet Shaft Generators

By Daniele Pedron, *Marine Global Industry Segment Manager for ABB's Large Motors and Generators Division*

Faced with a combination of mounting regulatory pressure and escalating fuel prices, shipowners and operators must adapt quickly or risk falling behind. Improving energy efficiency and cutting greenhouse gas emissions are no longer optional – they are essential to long-term viability in the shipping industry, helping to hit environmental goals but also significantly reducing operational costs.

To meet these challenges head-on, the industry is looking towards innovative technologies that offer not just compliance with current environmental standards but also a pathway to sustained operational efficiency. Among these transformative solutions, permanent magnet (PM) shaft generators are emerging as a cornerstone of maritime electrification and sustainability.

Meeting the New Maritime Mandate

Regulatory frameworks such as the International Maritime Organization's (IMO) Energy Efficiency Design Index (EEDI) for new ships and the Energy Efficiency Existing Ship Index (EEXI) for existing vessels have placed a renewed emphasis on reducing greenhouse gas emissions and improving energy performance. Beginning in 2027 some vessels will also be subject to emissions-linked charges in further efforts from the IMO to address the sector's carbon footprint. Alongside these regulations, volatile fuel costs and increasing scrutiny from environmentally conscious stakeholders are accelerating the transition towards cleaner technologies.

In this evolving landscape, electrification is a powerful lever – and PM shaft generators are proving to be a high-impact component of that strategy to provide benefits for both the planet and the bottom line.

Benefits of PM Shaft Generators

The core advantage of PM shaft generators lies in their efficiency, particularly under variable load and speed conditions. These generators maintain high performance even during low-speed sailing or partial engine loads – scenarios that are commonplace in ocean-going operations.

For example, a 3 MW PM shaft generator delivers 98% ef-

ficiency, compared to around 94% for a comparable induction generator. That 4% gain may seem modest at first glance, but when applied across thousands of operational hours, the savings become substantial. Over the course of a year, a 3 MW PM generator can deliver fuel savings of approximately $54,000, depending on the fuel type and market conditions, and reduce CO2 emissions by 223 tons per vessel, equivalent to the annual energy use of 30 homes.

Beyond financial savings, reduced fuel consumption results in lower CO_2 emissions, helping vessels meet or exceed environmental benchmarks with greater ease. PM generators therefore serve a dual purpose: enhancing profitability while supporting environmental stewardship.

Another key advantage lies in the robust, brushless design of PM shaft generators. With fewer moving parts and no brushes to replace, these systems suffer fewer breakdowns, have reduced downtime, and lower lifecycle costs – crucial for commercial shipping operators seeking to maximise vessel uptime.

Marine engineers and shipbuilders often operate under strict constraints when it comes to space and weight on board a vessel. Here too, PM shaft generators stand out. Their compact footprint and lightweight construction make them ideal for modern vessels, where every square metre and kilogram matters.

Compared to conventional alternatives, PM generators are up to 20% smaller and 30% lighter. This reduction in size and weight is made possible in part by an integrated water-jacket cooling system, which removes the need for bulky external cooling components.

In addition, PM shaft generators are built on a standardised platform, which enables simplified integration and faster deployment. Unlike bespoke, engineered-to-order systems, standardised PM generators can reduce delivery lead times by 30-50%, enabling shipyards to meet tighter construction schedules without compromising performance or reliability. This is another area of cost reduction PM shaft generators enable, delivering savings more quickly through faster deployment and making it quicker to see ROI.

Operational Flexibility

One of the most pressing challenges in today's shipping industry is how to prepare for the future of marine propulsion. PM shaft generators are designed with the future in mind. Thanks to their built-in operational flexibility, they can be seamlessly integrated into a broad range of propulsion configurations, including hybrid-electric and fully electric systems. This adaptability means that vessels equipped with PM generators today are already well positioned for future retrofits, including the addition of battery storage, fuel cells, or hydrogen-based propulsion systems. In an industry where retrofitting can be expensive and disruptive, this forward-looking design provides shipowners with peace of mind and long-term strategic value as well as short-term cost reduction.

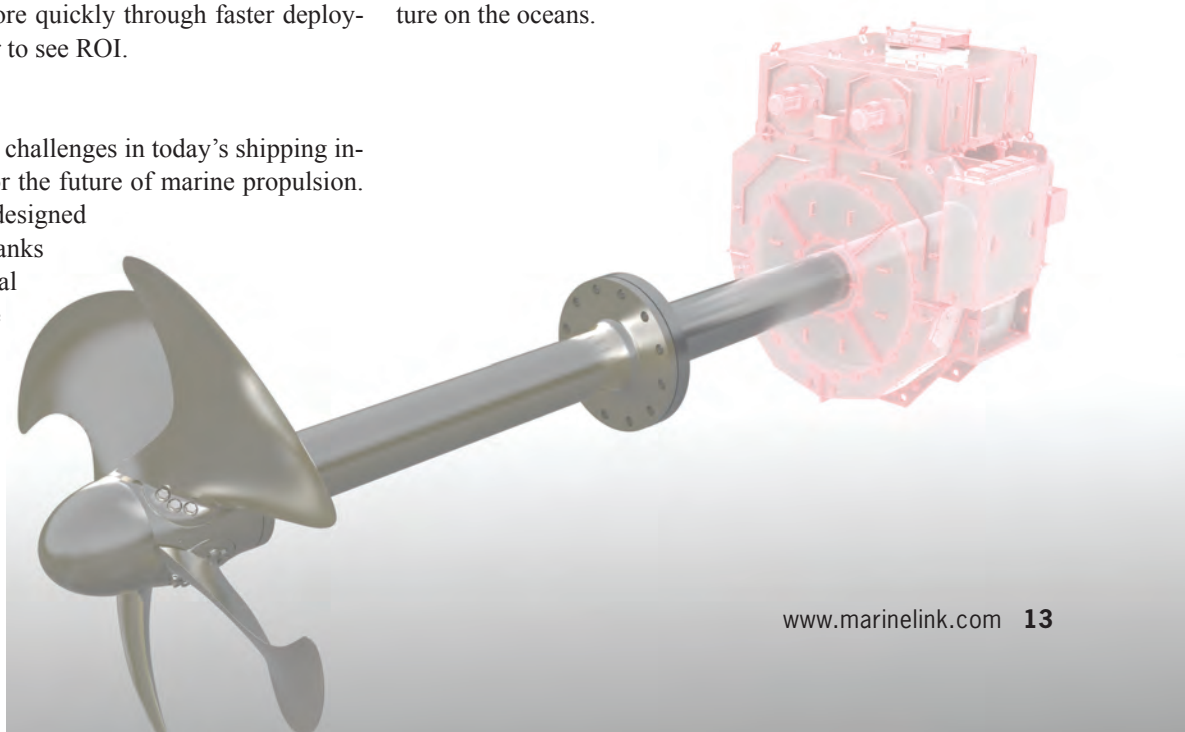
Real-world adoption of PM shaft generators is gaining pace, particularly among progressive shipbuilders and fleet operators. In February 2025, ABB secured contracts to supply PM shaft generator systems for 18 liquefied natural gas (LNG) carriers being built in China, and 12 more vessels in South Korea. These orders reflect a growing recognition of the value these systems bring – both economically and environmentally.

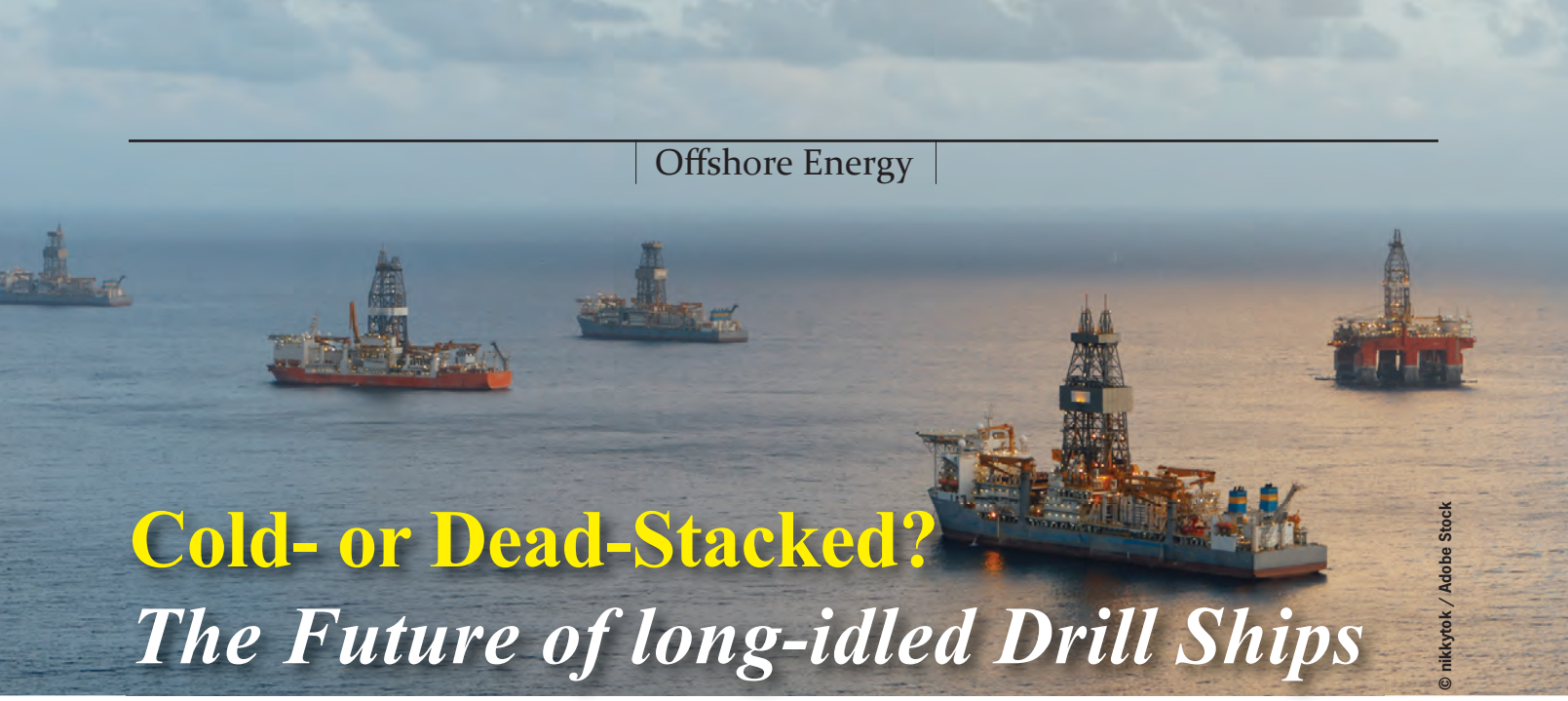
Such large-scale adoption is a promising sign that the maritime industry is beginning to embrace the transformation required to meet its long-term sustainability targets while remaining competitive.

Sustainable Shipping

Permanent magnet shaft generators represent more than just an incremental improvement – they signify a paradigm shift in marine power generation. With their outstanding efficiency, low maintenance requirements, compact form, and readiness for future energy integration, they offer a robust, long-term solution to some of the industry's most urgent challenges.

For shipping companies navigating a world of regulatory uncertainty, fluctuating fuel markets, and rising environmental expectations, PM shaft generators provide a clear, strategic route to sustainable and profitable operations. Energy efficiency is a vital part of addressing the industry's emissions but it also helps to create a solid platform for the marine sector to remain financially viable. As the shipping industry continues to evolve under the pressure of global decarbonisation goals, technologies like permanent magnet shaft generators will play an increasingly central role in shaping a smarter, greener future on the oceans.





Cold- or Dead-Stacked?
The Future of long-idled Drill Ships

Noble Corporation's recent decision to sell the Pacific Meltem and Pacific Scirocco for non-drilling purposes highlights a key issue in the drillship market: What happens to cold-stacked rigs that are unlikely to return to work? With the floater market showing signs of weakness and contract opportunities becoming scarcer, reactivating these units is proving even more challenging.

By Sofia Forestieri, *Senior Analyst at Esgian*

Esgian Rig Values has adjusted its valuations since early 2025 to reflect these conditions, reducing 6th generation drillship values by approximately 12%, 7th generation values by approximately 6.5%, and cold-stacked rig values by a further 10% in February leading to a 24% reduction year to date for the latter. While some of these could technically be reactivated, the high costs and uncertain contract prospects make recycling or conversion a more viable option for older, long-idle rigs.

Transocean, which holds the largest pool of cold-stacked drillships, may eventually have to make tough decisions on rigs such as Discoverer Clear Leader and Discoverer Americas, which have been stacked for over seven years. Valaris DS-11, stacked since 2022, is another possible recycling/conversion candidate. Meanwhile, the demand outlook over the next 24 months remains challenging, with contracted competitive utilization projected to decline from 90% to 73% by December 2025.

With no confirmed contracts for several rigs rolling off contract, owners have little incentive to reactivate cold-stacked assets, especially as doing so would only introduce more competition and pressure on already softening dayrates. Selling these rigs for drilling purposes would only introduce further competition, potentially bidding against their own fleet in an already oversupplied market. However, some alternatives to scrapping are emerging.

Market rumours suggest that Turkish Petroleum (TP) is looking to acquire up to four drillships. While specific units have not been confirmed, this strategy could provide an attractive solution for owners seeking to sell stacked rigs at substantially higher prices than scrapping, without creating additional competition. Since 2018, 25 drillships have exited the market, with 21 scrapped and 4 sold for conversion.

The most recent drillship taken out of the drilling fleet was Transocean's 6 th generation Ocean Rig Olympia, which is to be converted for deep-sea mining. Meanwhile, Noble recycled the 6 th generation Pacific Mistral and Pacific Bora in 2021 for $10 million and $14.5 million, respectively. That year saw the highest number of drillship retirements, with 9 units recycled amid the market turbulence caused by the COVID-19 pandemic.

Drillship sales for Non-Drilling Purposes

Presently, 13% of the total drillship fleet is cold-stacked. This accounts for 14 rigs, all of which are young and modern, with delivery years ranging between 2009 and 2023, including designs such as 7th generation Samsung 12000 and DSME 12000. Three rigs have also never worked, the 7th generation 12,000-ft Pacific Meltem, Valaris DS-13, and Valaris DS-14, being stacked shortly after delivery. The pool of cold-stacked drillships is controlled by three companies - Noble, Transocean and Valaris.

List of Cold-Stacked Drillships

With Noble's divestment, the landscape of cold-stacked drillship ownership is shifting. While Noble will soon exit this space, Transocean and Valaris still hold a considerable number of long-idle rigs, each facing different strategic and financial challenges. For Noble, this move aligns with its aggressive strategy to cut costs and focus on a more competitive, high-spec fleet, a direction further reinforced by its merger with Diamond Offshore in September 2024.

Transocean currently holds 9 cold-stacked drillships. Aside from Discoverer Inspiration (stacked for 294 days and currently held for sale) and Discoverer India (stacked for 4.5 years), the other rigs have been idle for over 7 years. Reactivation costs pose a significant challenge; however, scrapping these rigs would have a major financial impact, with their Book Value significantly higher than their Market Value.

Esgian values the Transocean Enhanced Enterprise Class rigs, Discoverer Clear Leader, Discoverer Americas, Discoverer Inspiration between $64 and $75 million. ustoMSC P10000 Deepwater Champion is valued between $144 and $159 million, and Samsung 12000 Ocean Rig Mylos, Ocean Rig Athena and Ocean Rig Apollo are valued between $165 and $185 million.

With recycling most likely not a viable option, Transocean is left with the expensive option of reactivation, which could cost as much as $100 to $150 million per rig, or simply leave them stacked with minimal upkeep or what could best be described as 'dead-stacked'.

Transocean's Cold-Stacked Drillships' Valuation

Valaris faces a different challenge with its 3 cold-stacked drillships. Two of them, newbuilds Valaris DS-13 and Valaris DS-14, were acquired for an aggregate price of $337 million and stacked shortly after. Despite being cold-stacked for nearly a year and a half, Valaris has actively marketed these rigs, indicating that they have been maintained in good condition.

As a result, Esgian estimates that reactivation would cost approximately $40 to $50 million, and would take about 6 months to complete. Valaris DS-11, on the other hand, was delivered in 2013 and has been stacked for a little over two years.

It could be a potential candidate for recycling or conversion and is currently valued between $171 and $189 million. This valuation considers the rigs' cold-stacked status, meaning that selling them for non-drilling purposes, such as conversion or recycling, would result in materially lower sales prices.

Valaris' Cold-Stacked drillships' Valuation

With demand softening and utilization expected to decline, what does this mean for the viability of long-term cold-stacked rigs? The current competitive drillship fleet totals 80 rigs. Competitive contracted utilization* is 89%, projected to average around 86% by the end of the second quarter of this year, and to drop to 71% by December, with 14 drillships rolling off contract by year-end and no confirmed future contracts so far.

**Competitive contracted utilization is the number of rigs contracted (current and future) divided by the competitive fleet.*

Drillship White-Space to Increase by December 2025

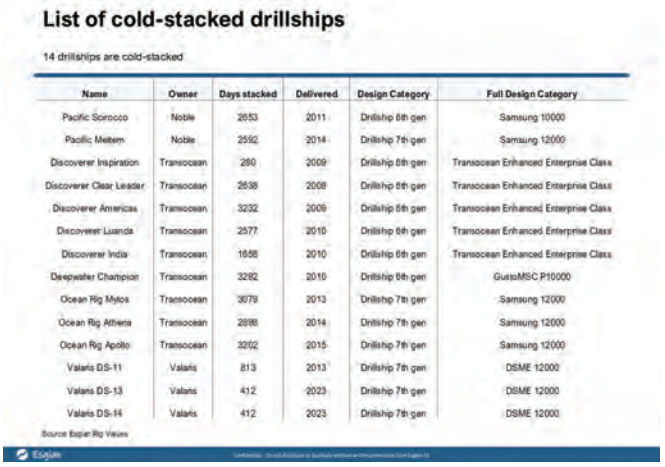
With demand now being pushed into late 2026 and beyond in key deepwater regions such as the US GOM, South America, West Africa, and Southeast Asia, the existing fleet is already facing increasing competition for contracts. This tightening market dynamic suggests that bringing additional capacity online through the reactivation of cold-stacked rigs is not a viable solution in the short term.

Drillship sales for non-drilling purposes

2018 – present

Sale date	Name	Sales type	Seller	Buyer
Feb-23	Ocean Rig Olympia	Conversion	Transocean	Global Sea Minerals Resources
Aug-21	Pacific Mistral	Recycling	Noble	GMS
Aug-21	Pacific Bora	Recycling	Noble	GMS
Jul-21	Discoverer Spirit	Recycling	Transocean	Undisclosed
Jul-21	Discoverer Enterprise	Recycling	Transocean	Undisclosed
Jul-21	Discoverer Deep Seas	Recycling	Transocean	Undisclosed
May-21	West Navigator	Recycling	Seadrill Ltd	Rota Shipping
Mar-21	Aban Abraham	Recycling	Aban Offshore	Last Voyage
Mar-21	Aban Ice	Recycling	Aban Offshore	Undisclosed
Jan-21	Titanium Explorer	Recycling	Vantage Drilling	Undisclosed
Oct-20	Noble Bully I	Conversion	Noble	Orleans Asset Holdings
Oct-20	Noble Bully II	Conversion	Noble	Orleans Asset Holdings
Aug-20	Valaris DS-6	Recycling	Valaris	Undisclosed
Jul-20	Valaris DS-5	Recycling	Valaris	Rota Shipping
Jul-20	Valaris DS-3	Recycling	Valaris	Rota Shipping
Mar-20	Vitoria 10000	Conversion	Best Oasis	Allseas
Nov-19	Deepwater Discovery	Recycling	Transocean	Rota Shipping
Oct-19	Vitoria 10000	Recycling	Petrobras	Best Oasis
Sep-19	Ocean Rig Paros	Recycling	Transocean	Rota Shipping
Aug-19	Belford Dolphin	Recycling	Dolphin	Undisclosed
Jan-19	SC Lancer	Recycling	Schahin	Undisclosed
Nov-18	GSF C.R. Luigs	Recycling	Transocean	Rota Shipping
Nov-18	Deepwater Frontier	Recycling	Transocean	Rota Shipping
Nov-18	Deepwater Millennium	Recycling	Transocean	Rota Shipping
Sep-18	Jasper Explorer	Recycling	Focus Offshore Services	GMS

Source: Esgian Rig Values

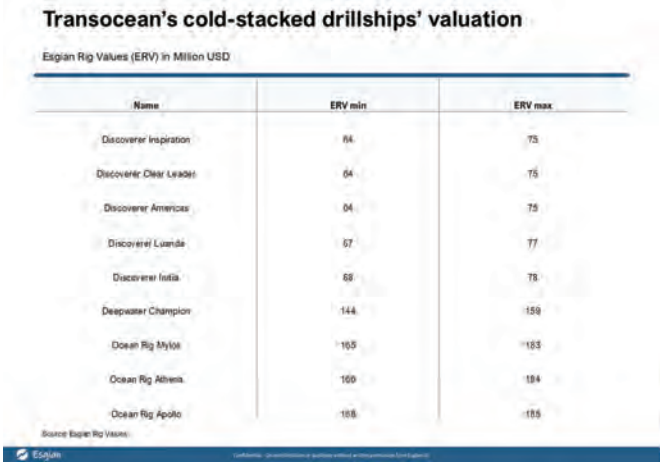


List of cold-stacked drillships

14 drillships are cold-stacked

Name	Owner	Days stacked	Delivered	Design Category	Full Design Category
Pacific Scirocco	Noble	2653	2011	Drillship 6th gen	Samsung 10000
Pacific Meltem	Noble	2592	2014	Drillship 7th gen	Samsung 12000
Discoverer Inspiration	Transocean	280	2009	Drillship 5th gen	Transocean Enhanced Enterprise Class
Discoverer Clear Leader	Transocean	2638	2008	Drillship 5th gen	Transocean Enhanced Enterprise Class
Discoverer Americas	Transocean	3232	2009	Drillship 5th gen	Transocean Enhanced Enterprise Class
Discoverer Luanda	Transocean	2577	2010	Drillship 5th gen	Transocean Enhanced Enterprise Class
Discoverer India	Transocean	1658	2010	Drillship 5th gen	Transocean Enhanced Enterprise Class
Deepwater Champion	Transocean	3282	2010	Drillship 5th gen	GustoMSC P10000
Ocean Rig Mylos	Transocean	3079	2013	Drillship 7th gen	Samsung 12000
Ocean Rig Athena	Transocean	2898	2014	Drillship 7th gen	Samsung 12000
Ocean Rig Apollo	Transocean	3202	2015	Drillship 7th gen	Samsung 12000
Valaris DS-11	Valaris	813	2013	Drillship 7th gen	DSME 12000
Valaris DS-13	Valaris	412	2023	Drillship 7th gen	DSME 12000
Valaris DS-14	Valaris	412	2023	Drillship 7th gen	DSME 12000

Source: Esgian Rig Values

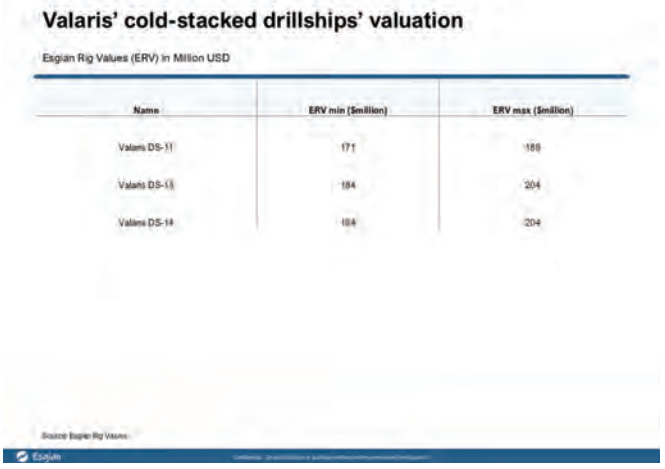


Transocean's cold-stacked drillships' valuation

Esgian Rig Values (ERV) in Million USD

Name	ERV min	ERV max
Discoverer Inspiration	64	75
Discoverer Clear Leader	64	75
Discoverer Americas	64	75
Discoverer Luanda	67	77
Discoverer India	68	78
Deepwater Champion	144	159
Ocean Rig Mylos	165	183
Ocean Rig Athena	169	184
Ocean Rig Apollo	168	185

Source: Esgian Rig Values

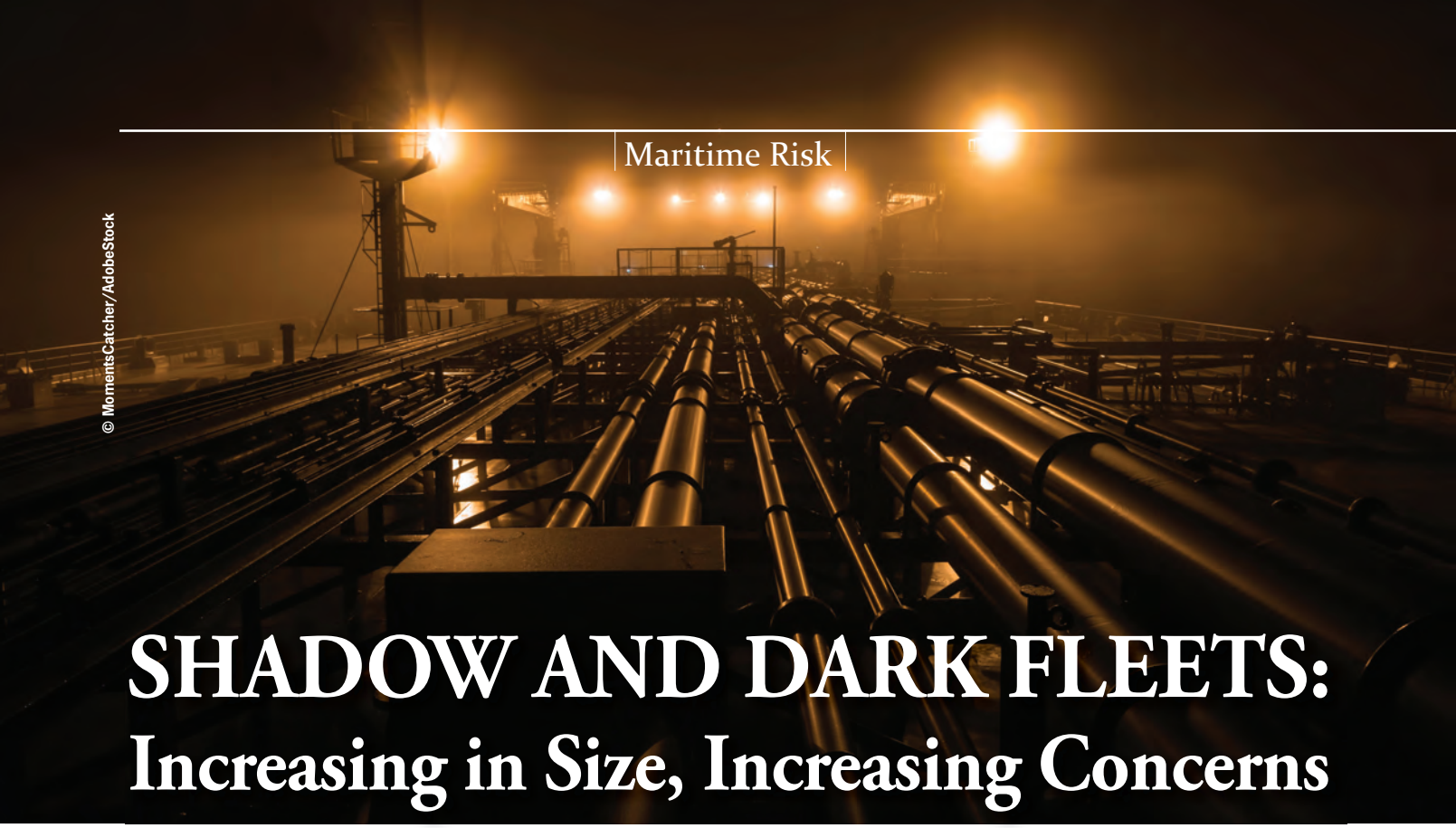


Valaris' cold-stacked drillships' valuation

Esgian Rig Values (ERV) in Million USD

Name	ERV min ($million)	ERV max ($million)
Valaris DS-11	171	189
Valaris DS-13	194	204
Valaris DS-14	194	204

Source: Esgian Rig Values



SHADOW AND DARK FLEETS: Increasing in Size, Increasing Concerns

By Captain Rahul Khanna, *Global Head of Marine Risk Consulting, Allianz Commercial*

Global insurer Allianz Commercial recently issued its 2025 Safety & Shipping Review, examining maritime risk trends and losses. The report revealed that the shipping industry has made significant improvements when it comes to maritime safety in recent years. During the 1990s the global fleet was losing 200+ vessels a year. This total had halved 10 years ago and is now down to a record low of 27 as of the end of 2024 (from 35 in 2023).

Despite the ongoing trend for fewer large losses, challenges remain. Shipowners are trying to operate vessels safely within an ever-changing and dynamic regulatory framework and do the right thing while managing a host of complex issues. One such risk is the rise of the shadow fleet, comprised of mostly older, poorly maintained oil tankers, which has expanded rapidly, posing significant maritime safety and environmental risks.

Shadow fleet risks

In July 2024, the Singapore-flagged oil tanker Hafnia Nile collided with the dark fleet super tanker Ceres I off Malaysia's east coast, causing both vessels to catch fire. The incident followed the detention of shadow fleet tanker Andromeda Star by Danish authorities in March 2024 after the 15-year-old vessel collided with the Bulgarian-flagged cargo ship Peace.

Shadow fleet or dark fleet tankers illegally trade oil subject to Western sanctions and embargoes. While the shadow fleet initially grew out of the illicit trade in Iranian and Venezuelan oil, it has increased significantly with the imposition of sanctions and the international price cap on Russian oil. Around 80% of Russia's oil exports are now thought to be shipped on shadow tankers.

While definitions of shadow fleet vessels differ, they are typically older vessels (15+ years) that are poorly maintained and hold insufficient or no insurance. Sailing under flags of convenience, they take steps to obscure their true ownership and employ various risky tactics to avoid detection, such as switching off automatic identification systems (going dark) and the use of dangerous ship-to-ship transfers in international waters off Russia, Malaysia, Malta, Greece, South Korea, Oman and the UAE to name some of the major hotspots.

As a result, a significant proportion of the world tankers fleet is now operating outside Western jurisdiction, with minimal oversight and little or no insurance.

Since the start of the war in Ukraine, the size of the shadow fleet has exploded. Today, around 17% of the world tanker fleet is thought to belong to the shadow fleet: S&P Global estimates that there are approximately 591 shadow fleet tankers trading Russian oil alone, while the Kyiv School of Economics puts the number at around 435. The Centre for Research on Energy and Clean Air (CREA) reckons that an average of three shadow tankers leave Russian ports daily.

According to CREA, 72% of shadow tankers are over 15 years old. It also estimates that the cleanup costs for an oil spill involving a shadow tanker could be as much as US$1.6bn.

Although western efforts to tackle the growth in the shadow fleet have intensified with EU, UK and US sanctions packages and the targeting of companies that support the operations of

unsafe oil tankers, efforts to contain the shadow fleet have so far fallen short, although in March 2025 it was reported that the US administration was considering a plan to stop and inspect Iranian oil tankers at sea under an international accord aimed at countering the spread of weapons of mass destruction.

In April 2025, the EU said that it had adopted new rules requiring vessels passing through its waters to provide insurance details, adding this would improve its ability to monitor "and if necessary investigate" vessels suspected of not having proper coverage. The rules apply to vessels over 300GT but there are exemptions. It followed this up by announcing a new raft of sanctions against Russia-linked shadow fleet vessels and propaganda outlets or vessels and entities involved in the sabotage of underwater cables, airports, or servers.

These vessels pose a serious risk to shipping and the environment, as shown by recent collisions and groundings involving shadow fleet vessels in Europe and Asia. Tougher sanction measures have been introduced, but it remains to be seen if they will control the issue going forward.

From a marine insurance standpoint, insurers continue to invest in tools and resources to ensure compliance with sanctions requirements. Dark fleet vessels on sanction lists are easily identified during due diligence, yet so-called grey fleet vessels are more concerning. These vessels have legal ownership and are registered with flag states, and there may not be clear signals that they are conducting illegal trade. That is the part of the shadow fleet that needs careful attention to avoid issues with sanctions. Insurers have processes in place, but it requires significant effort in terms of work and investment in tools and people to stay ahead.

Spy-Ships, Dark Fleets Impact Merchant Vessels

Recent incidents involving vessels suspected of damaging critical undersea cables have heightened scrutiny on maritime activities. Damage is often accidental, mainly due to fishing and anchors. However, deliberate acts are suspected in regions such as the Baltic Sea, Red Sea and South China Sea, although attribution is challenging.

Undersea infrastructure is vital in today's digital economy: 99% of the world's data is transmitted through a global network of 450 sub-sea cable systems which extend over a distance of 1.5mn kilometers. An estimated US$10trn in financial transactions rely on sub-sea cable networks each day, according to NATO and the International Cable Protection Committee (ICPC).

Damage to sub-sea cables is not uncommon: There are around 150-200 cases of faults or damage reported annually according to the ICPC. Most of these incidents are accidental, with approximately 70-80% attributed to commercial fishing activities and ship anchors, while the rest are mostly the result of equipment failure or natural hazards, such as storms and landslides.

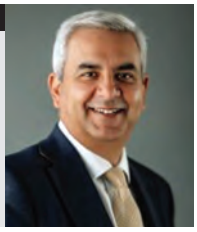
A number of vessels have come under suspicion or have been detained for damaging cables, while others have been involved in transporting sanctioned cargoes of oil. With growing concern about shadow fleet vessels and espionage, we see merchant vessels potentially being used to carry out deliberate acts of damage and disruption to sub-sea cables.

It is becoming harder, not just for the authorities to address these problems, but also for unsuspecting shipowners caught up in such acts. Meanwhile, the recruitment process for seafarers of specific nationalities could undergo an overhaul creating further pressure on the existing seafarer shortage. If we come to a place where vessels are suspected of espionage or acting in the interests of states, it would have an impact on international shipping, which relies on trust and the principle of the free movement of trade.

The Author

Khanna

Captain Rahul Khanna is Global Head of Marine Risk Consulting at global insurer Allianz Commercial. A marine professional with 27 years of experience, Captain Khanna served more than 14 years on board merchant ships in all ranks.



To read Allianz Commercial's *2025 Safety & Shipping Review* scan the QR code:

Assistant Secretary of the Navy for Research, Development and Acquisition Nickolas Guertin, gives remarks during the Ship Repair Facility (SRF) New Year's Celebration onboard Commander, Fleet Activities Yokosuka (CFAY).

U.S. Navy photo by Taylor Ardito

GUERTIN: NAVY NEEDS MORE SHIPS; THE NATION NEEDS MORE *[AND BETTER TRAINED]* SHIPBUILDERS

Nickolas H. Guertin *served as the assistant secretary of the Navy for research, development and acquisition (ASN RDA) in the last administration. He spoke with Edward Lundquist just prior to the Jan. 20 inauguration.*

By Edward Lundquist

As the present administration draws to a close, can you wrap up your accomplishments and outline the challenges that still exist?

Even after a year I felt like I was still new to the job. But I was not new to this type of work, and was able to bring in that experience. I'm satisfied with our accomplishments, but I admit that many challenges await my successor. I think I can say without reservation, and I left it better place than I found it when I first started.

The previous position I held as director for Operational Test and Evaluation was the best job I had in my whole life up to that point. But being the ASN RDA— the acquisition executive for the Navy and Marine Corps -- is just the most exciting thing I could ever possibly imagine doing.

How did you prioritize your goals and objectives?

We were looking at the challenges the shipbuilding industry and the industrial base was facing with its current and future workforce. One obvious conclusion was that we need more skilled workers, especially the junior, first- and second-year new hire employees. This has had an impact on the shipyards meeting cost, schedule and performance. Some of the ship building contracts we are in now haven't been as profitable as industry that thought they were going to be when they bid on them, in part because they found they need to pay their shipyard workers more than they had expected to pay them--while costs of second-tier supplier parts and materials went up, too--when they signed those contracts, especially before 2020. It's not just the shipbuilding world. It's also happening in the aircraft and avionics and mission systems world as well. It's a manufacturing problem, and it's a national problem.

What are some of the changes you've implemented?

I established the Maritime Industrial Base (MIB) program office. The Navy was initially targeting submarine production. But, because we realized a lot of what we were doing was also beneficial to the surface domain, and in fact, many aspects of defense manufacturing, we're looking at the entire Maritime Industrial Base.

Last year we got a big chunk of money for improving the submarine industrial base — not just the two prime shipbuilder companies, but the whole submarine industrial base, spread out across the supporting sector companies.

The implementation plan focused on getting us to the point where we can build one Columbia-class nuclear ballistic missile submarine and two Virginia-class nuclear attack submarines a year in serial production, and be in a position where we could build two and a third Virginias to support our AUKUS commitment. That will require not only the submarine build-

U.S. Navy photo

"China has really thrown a whole lot of money into industrial capacity for ship building, and right now, more than 70% of the ships that are on order are to be built in Chinese yards. We are a maritime nation – 90% of our goods and services move by sea. But we don't build ships, except those required under the Jones Act. The Jones Act is not the problem. The problem is we don't compete on an international level, on the same playing field with countries that are spending their money on industrial capacity."

– Nickolas H. Guertin,
Former Assistant Secretary of the Navy for Research, Development and Acquisition

The **Hon. Nickolas Guertin** (right), visits Unmanned Undersea Vehicle Squadron One's Mission Package Support Facility (MPSF) at Naval Surface Warfare Center, Port Hueneme Division (NSWC PHD), while serving as director, Operational Test and Evaluation Office of the Secretary of Defense.

U.S. Navy photo by Eric Parsons/Released

ing yards to get stronger and build faster, but all of their supporting suppliers.

To ramp up our production capacity, we need our second-tier suppliers step up, but there's just not enough of them. Many of our second-tier suppliers are sole-source providers, and that's just not healthy from a business perspective. We need competition and we need more options to get the work done.

We developed five lines of effort for improving shipbuilding: infrastructure, strategic outsourcing, supplier development, workforce development and manufacturing technology.

The shipbuilding infrastructure line of effort includes the facilities already building ships for the Navy — both commercial and government yards.

The strategic outsourcing line of effort will find additional sources of hull modules and major components for submarine construction. These modules are fabricated and then shipped to the assembly yards where they are fitted into the hull. Those yards can apply those skills and tools to build surface ships as well.

The supplier development piece is improving capacity and resilience at the second tier of the supply chain to provide competitive alternatives and improve throughput capacity to build more things faster.

The workforce development component acknowledges that we need 10,000 skilled trades and crafts people now, and an additional 10,000 annually at a minimum, to make submarines and surface ships, for the rest of the decade. That doesn't take into consideration some of our poor worker retention challenges, which is also part of the calculus.

We're investing in the workforce of tomorrow at places like the places like the Accelerated Training in Defense Manufacturing (ATDM) in Danville, Va., where we're not just training people how to do that work, but we're training people on the newest ways of doing that work. It's exciting.

We have a great value proposition—training, good pay and a career that has a higher purpose that other jobs. That's why we are advertising heavily to attract people to apply for these job opportunities.

The last one, manufacturing technology, underscores the need to adopt the newest and best technologies, tools and concepts to improve quality and quantity oat the most affordable cost. We've lost a lot of capacity in our industrial base capability for things like forgings and castings. But today's technologies like additive manufacturing, robotic welding, automated non-destructive testing, and using artificial intelligence to evaluate completed components, can significantly impact manufacturing throughput.

Have you been successful?

It's working. We'd like to build up our work force faster, of course. But our effort has made a substantial positive impact on getting the people through the door. From there, it's up to industry to treat them well, train them, getting them good pay, and getting them a positive work environment. That's something that private industry has to do in order to retain that workforce, but we can get them into the front door.

The last of those five lines of effort is the actual technology of manufacturing. We've lost a lot of base industrial capacity, basic things that we used to do everywhere, like forgings and castings. We just don't do that very much in this country any-

more. We farmed a lot of that work out.

However, the good news is that today there are technologies that can create physical objects that up until now would be done through older manufacturing methods. By using advanced manufacturing technologies like additive manufacturing, computer numerical control (CNC) machining, robotic welding, automated non-destructive testing, and using artificial intelligence to evaluate completed components, we're improving the capacity and the technology for manufacturing throughput.

How does innovation fit into this?

Innovation is happening at places like the Navy laboratories, warfare centers and in industry. I'm particularly enthusiastic about the Naval Innovation Center at the Naval Postgraduate School in Monterey, as well as the NavalX TechBridges we have around the country to find new and exciting technologies and concepts. NavalX is one of those entities that helps us open up our perspective for working with industry in new ways on how we might do our work better.

What can you tell us about the Ships for America Act?

The Ships for America Act is bi-partisan legislation that acknowledges that countries that compete with U.S.-flagged merchant ships and ships built in U.S. shipyards nations have an unfair competitive advantage over the U.S.

If it were truly an open market it would be a different story. But we see countries that are plowing their national wealth into industrial capacity -- especially China. China has really thrown a whole lot of money into industrial capacity for ship building, and right now, more than 70% of the ships that are on order are to be built in Chinese yards. We are a maritime nation -- 90% of our goods and services move by sea. But we don't build ships, except those required under the Jones Act. The Jones Act is not the problem. The problem is we don't compete on an international level, on the same playing field with countries that are spending their money on industrial capacity. We need to get back into the business of building ships, and that will require a public investment. And that goes for our public shipyards as well as industry.

Shipyards thrive on stability and predictability. When our shipyards have a backlog--years' worth of work—they can plan, and make the appropriate investments to improve capacity and improve profitability. We also have to look at our repair yards. We should probably be thinking about how we do business with them differently so that they have something akin to a robust backlog, and can also make investments and improve capacity and improve profitability, which will also help those yards be in a position to better support the Ships for America Act, should that get passed.

Workforce development, which I mentioned earlier, is part of the equation. Skilled tradecraft, and working with your hands, is an important part of America today. We're not all in the service industry. Not every kid has to go to college to live a successful, happy life. Building ships for the United States Navy and Marine Corps is great work, there's great opportunities to learn new skills, and the work of building these ships is going to continue to improve and evolve. We're going to be using more robots. We're going to be using more ways of using automation for test and evaluation. There it is a growing, thriving market. We're going we are buying ships like crazy. We just need to finish building them as fast as we're buying them, and we need more people for that work.

I'm particularly enthusiastic about ATDM in Danville specifically, and the other training environments we have in places like Maine and Michigan.

You've accomplished a lot in a year:

I've done my very best at it. I had kind of a fairly long list of things that I wanted to do if I had just a few more years to do it. But my job changed after the election, and it changed to setting up my successor for success and to position the organization so that the transition will be done with excellence. I think we achieved that goal.

Equipment List for Barge: MinRes Airlie

Ship Name:	MinRes Airlie
Ship Type:	Articulated Barge for ITB Combination
Ship Builder:	COSCO SHIPPING HEAVY INDUSTRY (ZHOUSHAN) CO., LTD.
Ship Owner:	MINRES MARINE PTY LTD
Ship Operator:	MINRES MARINE PTY LTD
Ship Designer:	IMC Naval Architects, Fremantle, Australia
Delivery Date:	March 15, 2024
Classification:	ABS

ATBs UNLOCK STRANDED

Main Particulars:

Length, (o.a.):	124.2 m
Length, (b.p.):	123.8 m
Breadth, (molded):	36.5 m
Depth, (molded):	9.0 m
Draft, (designed):	7.0 m
DWT (at design draft):	21851.6 MT
Fuel Type:	Diesel oil
Main engines:	Nil
Total installed power:	Four (4) main generators
Bow Thrusters:	Schottel SPJ 320, 1300kW (x2)
Generators:	1,255kW @ 1000rpm x 4
Engine controls:	Remote and local control
Radars:	FURUNO, FAR-3320-NXT-BB, X and S Band
Depth Sounders:	FURUNO, FE-800
Radios:	FURUNO
AIS:	FURUNO, FA-170
GPS:	FURUNO
GMDSS:	FURUNO
SatCom:	JOTRON, TRON 60AIS
Mooring equipment:	Taizhou Hinlee Marine Equipment, Total 4 Nos. (2 x Port and Starboard)
Fire extinguishing systems:	Fixed gas (CO2) fire extinguishing system provided on board
Fire detection system:	Smoke detection and manually operated call points in all corridors, stairways and escape routes
Heat exchangers:	Box Type coolers.
Life rafts:	2 Nos. (25 Persons each)
Ballast Water Management System:	Ballast Water Treatment System (BWTS): Maker: DESMI Ocean Guard (Mechanical Filtration and Ultraviolet Radiation)

IRON ORE

All images courtesy of MinRes

Australia's unique enclos
ensure a dust-free supply c

*The **MinRes** transhippers can unload at 6,000 tonnes of iron ore per hour.*

ed self-discharging transhippers chain for the Onslow Iron project.

By Wendy Laursen

Onslow in north Western Australia is a desert. It receives less than 10 inches of rain a year, and for much of the year temperatures reach 95 degrees Fahrenheit. It's known for dust storms that can turn the town red.

It's iron ore country, but the lack of a deepwater port meant that the nearby resources were stranded until Mineral Resources (MinRes) came up with a solution – one that also ensures the supply chain is dust-free.

The company's Onslow Iron project is one of the largest iron ore projects under development in Australia, and it's set to unlock billions of tonnes of ore in the west Pilbara region. It is being developed by MinRes on behalf of Red Hill Iron Joint Venture (RHIJV), including partners Baowu, AMCI and POSCO.

The supply chain begins with drill and blast activities, with the ore processed in crushers that reduce dust and noise. The ore is then transported by jumbo road trains, currently undergoing conversion to autonomous operation, which make the 150-kilometer journey from Ken's Bore mine site to the Port of Ashburton on a dedicated and private haul road.

There, it is stored in a negative pressure shed that can hold 220,000 tonnes. The iron ore is then reclaimed onto an enclosed conveyor belt and loaded onto transhippers. This process ensures the supply chain remains dust free.

The marine operation is one of the most unique and important parts of the Onslow Iron project's supply chain. Transhippers transport the ore to ocean-going vessels anchored 40 kilometers from the Port of Ashburton. Each has a self-loading system that will distribute ore throughout the vessels' holds. The barges are propelled by a tug via an articouple to form an articulated tug and barge (ATB).

The only competitive way to get the product from the mine to the market is through Capesize bulk carriers which require a deep-water berth, says MinRes Executive General Manager Marine Jeff Weber. However, the environmental impact and cost associated with dredging a deep-water berth to accommodate these vessels, which have a 19-meter draft, was prohibitive. It would have involved dredging a channel 22 nautical miles long.

"Transhippers significantly reduce the project's environmental footprint compared to developing a deep-water port, which is why it was the right solution for this project," says Weber.

MinRes designed the concept for the transhippers from

The ore is transported by jumbo road trains which make the 150-kilometer journey from Ken's Bore mine site to the Port of Ashburton on a dedicated and private haul road.

scratch, and the ATB design meant that more cargo could be carried on the barge. The Australian-flagged ATBs have length of 123 meters, breadth of 36 meters, and a draft of 7 meters when fully loaded. They can load at 8,000 tonnes per hour and unload at 6,000 tonnes per hour. "We can load it faster than most transhippers in the world, and we can discharge it faster than most transhippers in the world," says Weber. The round trip to the waiting bulk carriers takes 16 hours.

The barges were built in China and are named after islands off the Pilbara coast (MinRes Airlie, MinRes Coolibah, MinRes Montebello, MinRes Rosily), while the tugs are named MinRes Balder, MinRes Bessie, MinRes Odin, MinRes Thor. The tugs provide the propulsion and also accommodation services for the crew.

"Normally you have an elevated wheelhouse on a tug, and it overlooks the front of the barge," says Weber. "We couldn't do that because we had such a large hopper on the barge that we couldn't actually see over the top. So then we decided we'd go with controlling the whole vessel from the wheelhouse of the barge. And that hasn't been done in the world before.

"The barge hooks up to the tug, and the controls on the barge control the tug. It feels like a ship, you forget the tug is there after a while."

Two Crew Transfer Vessels (CTVs) support operations by moving mariners from shore to ship and transporting stores. MinRes Element and MinRes Incentive are largely similar vessels, each boasting twin 1,200 horsepower engines with an operational speed of 22 knots and a 0.9-meter draft.

In May 2024, MinRes took delivery of its first two transhippers in an intricate marine operation that saw both vessels transported from China to the Pilbara on a Cosco Shipping heavy lift vessel. Just weeks later, both transhippers were involved in delivering first ore on ship ahead of schedule. The fourth, MinRes Rosily was commissioned in March 2025. With regular fleet additions came increased shipping milestones, including MinRes chartering its first Newcastlemax vessel and very large ore carrier (VLOC).

MinRes' transhippers and marine operations are now playing a vital role in the project's ramp up to nameplate capacity of 35 million tonnes per annum (Mtpa). MinRes currently has four transhippers operational, with a fifth to arrive in the coming months.

From a classification society viewpoint, ABS has supported the project with their offshore engineering expertise combined with their dry bulker experience. With the global supply chain for critical minerals now such a hot topic, it is certain that in the near future, there will be even more challenging offshore projects involving ship to ship transfer of dry bulk cargo.


MINRES AIRLIE

EXPANDING OP
FOR WATERJ

It's no surprise that waterjets are great for shallow-draft, highly maneuverable craft, but vessel designers are busting out of the old stereotypes.

Source: Kongsberg Maritime

Kamewa Waterjets' unique ability to generate full reverse thrust enables vessels to come to a complete stop in just 1.5 boat lengths at speeds of 30 knots.

PTIONS JETS

By Wendy Laursen

Vessel designer Aircat Vessels has developed a surface effect ship (SES) crew transport catamaran, AIRCAT 35 Crewliner, that can sail at over 50 knots and manage offshore transfers in 2.5-meter seas. The air cushion system from ESNA dynamically adjusts to sea conditions so the vessel can reduce transit times, reduce fuel consumption and improve comfort for passengers travelling at high speed.

The first three vessels are now being operated by All Energies Services (AES) in Angola, taking passengers out to TotalEnergies Angola's offshore sites.

The Aircat vessel design was also recently taken up Centus Marine, and Strategic Marine is building the vessel which includes four of Kongsberg Maritime's Kamewa waterjets. Th waterjet's inlet nozzles are always covered by water even though the submerged volume of the vessel reduces by up to 80% when the air cushion is in use.

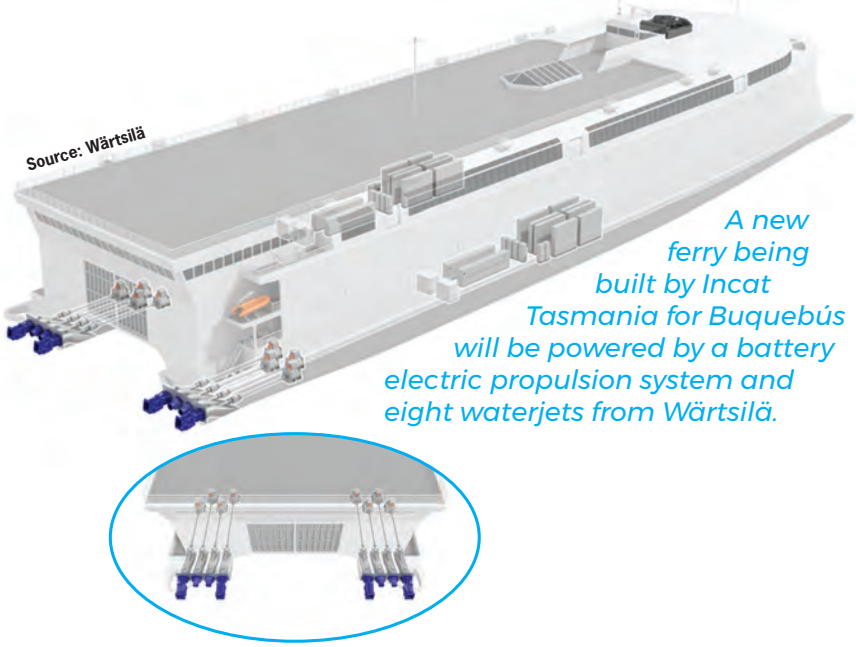
"In high-risk maritime environments, the ability to stop fast and reliably can be the difference between routine operation and disaster," says Anders Valkeinen, Vice-President Sales, High-Speed Craft at Kongsberg Maritime. "Kamewa Waterjets' unique ability to generate full reverse thrust enables vessels to come to a complete stop in just 1.5 boat lengths at speeds of 30 knots. This can be game-changing for operators like Aircat, whose high-efficiency crew transfer vessels operate near offshore platforms. When the unexpected happens, this capability becomes a critical safety tool."

The Aircat vessels are a first for SES for Strategic Marine. They may be the start of an increasing trend, but there is another trend that is already taking hold – a push for pairing waterjets with electric propulsion.

In January, two hybrid ferries were christened for Chatham Area

Aircat Vessels has developed a surface effect ship (SES) crew transport catamaran, AIRCAT 35 Crewliner, that features an air cushion system from ESNA.

Source: ESNA



Source: Wärtsilä

A new ferry being built by Incat Tasmania for Buquebús will be powered by a battery electric propulsion system and eight waterjets from Wärtsilä.

Two hybrid ferries were built by Derecktor Shipyards New York and powered by two waterjets from MFP for Chatham Area Transit of Savannah, Georgia.

Source: MJP

Transit of Savannah, Georgia. Built by Derecktor Shipyards New York, they are powered by two waterjets from Marine Jet Power (MJP). These 65-foot vessels represent a significant milestone as the first hybrid passenger ferries in the United States powered by waterjet propulsion.

Another record is being set by a new ferry being built by Incat Tasmania in Australia for Buquebús in Uruguay. The vessel will be the world's largest zero-emissions, lightweight catamaran ferry, and it will be powered by a battery electric propulsion system and eight waterjets from Wärtsilä. At 426 feet, it will be the biggest battery electric ship ever built.

The propulsion package includes eight permanent magnet e-motors, four steerable waterjets plus four booster (non-steerable) jets. The compact and lightweight axial flow WXJ1100 waterjets are optimized for medium speed (25 knots). The WXJ waterjet has a relatively small flange, so the jets can be placed close to one another on the transom, says Leendert Muilwijk, General Manager, Waterjets, Wärtsilä Marine. As the power is divided over more jets, the power density of each is lower, which means higher efficiency.

The total number of jets does not adversely affect maneuverability, says Muilwijk, as the jets can be grouped to create one resultant thrust vector on each side of the hull. This allows for a similar or better maneuvering thrust compared to a more conventional configuration with fewer larger waterjets. It also comes with a weight advantage and increases propulsion redundancy.

Electric motors have a different power curve and RPM range to combustion engines, and this necessitates adjustments to a waterjet's impeller shape and size to ensure maximum efficiency. Martyn Bowden, Head of Propulsion at NAMJet, says: "With electrification, you need a higher efficiency at lower speed, which means a larger diameter impeller and preferably lower impeller speed. Much of the power in a high-speed craft is used reaching planing speed at around 15-20 knots. A boat is least efficient from zero to planing speed. Our jets are different to other manufacturers catering to the electric market. Due to the Mass Flow pump design we run at a much lower RPM, because the bigger the impeller, the better low speed efficiency."

NAMJet focuses on the milpro market, and Bowden cites a recent delivery that demonstrates a new approach to the retrofit market. The company enabled the Swedish Armed Forces to repower all 60 of their old tug boats as part of a maintenance budget rather than as new acquisitions. "We designed a conversion kit that allowed them to use the same waterjet as their new boats with about 90% of the same parts without having to replace any structural components. Performance was increased by 50% on what were previous NAMJet waterjets installed 30 years ago. "Now, they've got parts compatibility for the next 30 years."

Technology developments are targeting greater power whilst also offering performance at lower speeds to boost the versatility of waterjet propulsion.

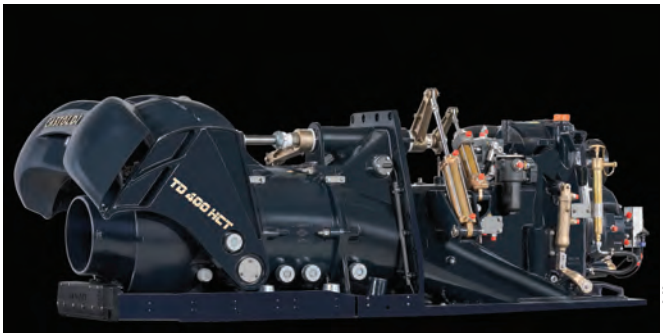
With this in mind, HamiltonJet recently launched its HTX65 waterjet. The HTX series provides high-speed efficiency while also performing well at low speeds. It features enhanced durability and easier installation due to a compact inboard footprint, narrow jet-spacing and low-profile design. With its new hydrodynamic design and harnessing 3,100kW of power, the HTX65 delivers 3.5% more high speed efficiency, enabling vessels to achieve speeds exceeding 50 knots. This is complemented by a low-loss steering system that conserves fuel during course adjustments and minimizes speed reduction during tight maneuvers.

At lower speeds, the HTX65 features a cavitation-resistant intake and pump design, providing up to 15% more peak bollard pull and greater sway thrust than other waterjets, says the company. This enhancement improves maneuvering response, position holding capability and vessel acceleration.

HamiltonJet's latest innovation – the LTX waterjet – has moved from initial design to commercial reality, with the first LTX36 jets commissioned on a 20-m passenger ferry in The Netherlands.

Source: HamiltonJet

Source: Castoldi



Castoldi says its Turbodrive 400 HCT is catering to the demands of a new era that seeks ever higher performance, efficiency and control without burning more fuel to achieve it.

Source: Castoldi

The HTX65 has an increased impeller rating range for greater compatibility with a wider range of engines, and the fully integrated hydraulics and controls are designed for efficient space utilization and seamless integration into various platforms.

HamiltonJet's also introduced the LTX waterjet – which has moved from initial design to commercial reality, with the first LTX36 jets commissioned on a 20-m passenger ferry in The Netherlands. "The LTX is a game changer," says HamiltonJet Managing Director Ben Reed. "It offers propeller-like efficiency at lower speeds while maintaining all the advantages of waterjet propulsion – shallow water operation, safety, and unmatched maneuverability."

The vessel Inselexpress 2, built by Next Generation Shipyard, is powered by twin LTX36 jets driven by Volvo D8 engines (313 bkW) via ZF gearboxes. During trials, the ferry comfortably met its predicted top speed of 23.5 knots, validating the LTX's technical promises and its potential to reshape propulsion performance in the 20–30 knot range.

Originally launched as a new design in 2023, the LTX series is HamiltonJet's step into the low- to medium-speed market traditionally dominated by propeller systems. The jets – now commercially available in LTX36 and LTX53 models – were inspired by nature's most efficient swimmer: the moon jellyfish. Travelling via a low-velocity jet of water, the jellyfish achieves exceptional efficiency through a large nozzle, minimal energy input, and a finely tuned natural design.

Castoldi also has new-generation technology. The company reports a recent delivery for a new patrol vessel for the Italian Coastguard which exceeded its design brief in an unusual early sea trial. Giacomo Castoldi, owner at Castoldi, said: "This new generation, high performance boat, christened CP335 and designed and constructed in Italy by FB Design, began its life with a demanding cruise from Venice to Puglia in winter sea conditions. The crew recorded speeds up to 38 knots, which is higher than the maximum forecast by the designers, underscoring the efficiency of the Turbodrive 400 HCT."

Castoldi says the Turbodrive 400 HCT represents a significant milestone in the evolution of waterjet propulsion, catering to the demands of a new era that seeks ever higher performance, efficiency and control without burning more fuel to achieve it.

All images courtesy Siemens Energy

CHARGE IT:

'ELECTRIFICATION' MOMENTUM MOUNTS IN MARITIME

Siemens Energy has had its hands on a number of groundbreaking ship design and construction projects globally, projects that highlight the possibilities and the challenges inherent in being a technology pioneer. ***Ed Schwarz****, Head of Marine Solutions Sales for Siemens Energy in the US and Canada, gives an insider's view of some practical steps to take if electrification is on an organization's fleet expansion agenda.*

By Greg Trauthwein

Energy transition is everywhere you turn in maritime today, and electric solutions are an important and growing part of the mix, as mandates for vessel owners to cut emissions are balanced with the need for them to increase fuel efficiency. With that, the conversation around electric propulsion has evolved from a speculative discussion into a technological movement. At the heart of this transformation are mega companies like Siemens Energy, whose work over the past decade—and beyond—has helped shape the hybrid and fully electric marine landscape. Ed Schwarz is a seasoned industry executive with more than two decades of experience, a USMMA alum that offers a voice of reason and salient pieces of advice in discussing both today's reality and tomorrow's possibilities in the area of electric solutions on commercial vessels.

Hybrid and Electric Propulsion: From Fringe to Forefront

"The idea of electrification is no longer limited to niche projects," Schwarz explains. "From ferries and offshore sup-

"Too often, we see owners fall in love with a design before they know how they'll fund it. That's backward. **Start with the budget.** *Then design for what's feasible now — and adaptable for the future."*

– Ed Schwarz, Head of Marine Solutions Sales for Siemens Energy in the US and Canada

port vessels to containerships and defense applications, virtually every segment of the commercial maritime industry is exploring hybrid and electric options."

What once felt like the future is increasingly the present. Hybrid systems, which combine traditional diesel engines with electric motors and battery storage, are now common across a range of vessels. Even larger oceangoing ships—historically considered too energy-intensive—are integrating power take-in (PTI) and power take-off (PTO) systems, making space for energy storage solutions and incremental decarbonization.

"We used to feel like we had to convince the industry of the benefits," says Schwarz. "Now, it feels like we're being pulled in. Operators want solutions—they're asking the right questions."

Ampere: A Case Study in Progress

Ampere, a Norwegian ferry that began as a hybrid and evolved into a fully electric vessel, stands as a landmark project in this transition. Delivered nearly 10 years ago — with development starting years before — Ampere was built at a time when charging infrastructure was limited and fully electric propulsion was still a high-risk venture.

Initially operating as a hybrid, Ampere leveraged diesel generators alongside battery power. Over time, as shoreside charging capabilities were added and battery systems improved, the vessel transitioned to a fully electric operation.

"Ampere is more than just a technical success — it's a roadmap," Schwarz says. "It shows how you can start with hybrid, validate the technology, and then move toward zero emissions as infrastructure and budgets allow."

The takeaways are clear: emissions have dropped dramatically, operational costs have declined, and perhaps most importantly, the vessel's owner says they would do it all over again. "That's the litmus test," says Schwarz. "Would you do it again? In Ampere's case — and in many others we've supported — the answer is a confident yes."

Benefits with a Business Case

Owners who've made the leap to hybrid or electric consistently report positive operational outcomes. Among them:

- **Emissions Reduction:** Hybrid and fully electric systems can significantly lower greenhouse gas and particulate emissions, particularly in port and coastal environments.
- **Fuel Savings:** Depending on the vessel type and operational profile, fuel savings can range from 5% to over 50%.
- **Reduced Maintenance:** Electric motors and battery systems often require less maintenance than traditional mechanical systems.
- **Enhanced Reliability:** Battery-assisted propulsion adds redundancy and can reduce downtime during engine maintenance.

Yet perhaps the most telling sign of success is repeat busi-

Ampere was a groundbreaking project in vessel electrification.

All images courtesy Siemens Energy

ness. Schwarz points to a recent Siemens Energy project in which the operator of a hybrid-electric vessel is now planning to commission a second newbuild. "That shows the technology is delivering—commercially and operationally."

The Three Big Challenges: Budget, Shore Power, and Regulation

While the progress is substantial, Schwarz acknowledges there are persistent hurdles. "We've seen three main challenges again and again: budget, shoreside infrastructure, and regulatory uncertainty."

- **Budget Constraints:** Hybrid and electric systems can increase a vessel's upfront construction cost by 20% or more. For owners with tight capital, this can stall otherwise promising projects. "We need to start with the budget," says Schwarz. "What's the best vessel we can build with current technology — within today's budget?"
- **Shore Power Infrastructure:** Full electrification requires significant onshore support. High-voltage transformers, grid stability, and utility access are often lacking — especially in remote or aging terminals. "Fifty years ago, the best vessels were the most self-reliant," says Schwarz. "Today, we need to reimagine vessel-shore integration."
- **Regulatory Clarity:** Especially in the U.S., where many vessels are not classed and operate under U.S. Coast Guard authority, the rules surrounding hybrid and electric propulsion are still evolving. However, Schwarz notes that the USCG has made major strides in supporting pilot programs and approving new designs. "We're seeing that learning curve flatten out."

Overcoming the Learning Curve

With more than 1,000 vessels worldwide now operating with battery energy storage systems, the industry has accumulated enough experience to move beyond early adopters. Design processes are maturing, and costs are starting to level out.

"We're no longer in the experimental phase," says Schwarz. "We're building smarter from day one, using lessons from every project before."

That includes U.S.-based projects, where Siemens Energy currently has more than a dozen marine electrification efforts in progress, spanning ferry conversions, research vessels, and hybrid tugboats.

Advice for Owners: Start with the Journey, Not the Blueprint

Schwarz is adamant that the best first step for any shipowner interested in electrification is education.

"Talk to someone who's done it. Go aboard a vessel. Visit a hybrid ferry. Owners love sharing their stories — and their hard-won insights."

Siemens Energy also dedicates a large portion of its engineering capacity to educating clients and exploring feasibility long before a contract is signed. "Our job isn't just to deliver systems. It's to help define what's possible — and practical — for each customer."

And in today's grant-heavy funding environment, starting with clear targets and defined budgets is crucial. "Too often, we see owners fall in love with a design before they know how they'll fund it. That's backward," Schwarz warns. "Start with the budget. Then design for what's feasible now — and adaptable for the future."

An American Evolution

Though Norway helped spark the modern electrification movement in maritime, the U.S. is catching up quickly—and applying its own style.

"We're not just copying Norway. We're adapting what they started and making it work for our ships, our routes, and our budgets," says Schwarz.

While Europe's model often benefits from strong government mandates and infrastructure investments, the American market is characterized by commercial pragmatism and regional diversity. "It's not one-size-fits-all, and that's okay," he adds.

U.S. shipyards, in particular, have proven themselves up to the challenge. "I would put our shipbuilders up against anyone," Schwarz says. "They're innovative, adaptive, and solution-focused. And a lot of the expertise we need already exists from the diesel-electric offshore boom a decade ago."

Despite shifts in political winds or grant funding cycles, Siemens Energy sees hybrid and electric propulsion as an enduring trend — not a temporary fad. "The benefits are too strong. And as more vessels come online, the case becomes clearer and clearer," says Schwarz.

Even defense and government stakeholders are taking note. Siemens Energy is involved in projects with the U.S. Navy and the Defense Innovation Unit to explore commercial electrification technologies for military use — a cross-pollination that could strengthen both sectors.

Ampere 10 Years Later

As Ampere celebrates its 10-year milestone, it's no longer just a symbol of what's possible—it's a blueprint for where we're headed. "This industry evolves through example," Schwarz says. "Ampere proved it could be done. Now the question is no longer 'if,' but 'how soon?'"

Image courtesy ABS

HOW FLNG TECHNOLOGY CAN EXPAND TO SUPPORT THE ENERGY TRANSITION

Fast-growing energy demand is driving the need for technical support and guidance in new locations, writes ***Terrance Roberts****, Manager, Global Business Development, ABS*

Surging appetite for natural gas is accelerating the development of global and regional supply chains, with established producers seeking new markets and emerging suppliers looking to meet demand from local consumers.

Long-tabled export projects are being fast-tracked for approval in North America while new facilities are under development in Canada and South America. However emerging markets in demand centres across Asia and elsewhere are also looking to rapidly increase production.

For countries seeking to access remote reserves and lacking highly developed infrastructure, demand for Floating LNG is expected to increase its market share as producers seek to capture new opportunities.

As the trend develops, the impetus will be on class societies and regulators to ensure the increase in production capacity is managed safely and efficiently.

Supply and Demand

Increasing supply of LNG in North and South America is pushing long-tabled export projects closer to final investment decision. Meanwhile demand growth spans Europe and Asia but also extends to other markets.

The need to increase supply due to geopolitical conflicts in the area has made Europe an attractive destination for LNG suppliers, encouraging project developers who want to meet

this demand sooner rather than later.

This structural shift has intensified competition for LNG cargoes, impacting the dynamics of demand between Europe and Asia. A complex combination of price fluctuations, energy policies and the need for supply diversification will help shape this trajectory in future.

Extreme weather is also impacting supply and demand, exemplified by droughts in South America in 2024, which saw LNG imports spike, affecting annual imports with a knock-on effects to global balances, helping to propel LNG prices to an all time high, according to IEA data.

As the needs of these importers continue to mature, other markets are expected to grow and others emerge as the second half of the decade progresses.

China remains the largest importer of LNG, though there is some uncertainty as to how tariffs will impact this. India is also increasing its exposure to LNG imports, with energy companies recently announcing offtake agreements.

Other potential markets that are seeing growth are in Southeast Asia, including Thailand, Vietnam and the Philippines, which are expanding their infrastructure to meet energy demands. Among the big unaddressed questions is whether Africa can emerge as a serious contender, in either regional import or export markets.

New Facilities

A combination of policy changes and expectations of an accelerated approval process has prompted established developers to talk of ramping-up LNG export projects, with facilities getting the green light as finance becomes available.

Projects will each take a unique approach to funding, relying on a combination of equity investment, bank debt and other options. The finance community backing US projects are less likely to be constrained by withdrawal of funding for LNG projects or requirements to meet strict environment, social and governance credentials.

This could lead to faster funding rounds or loans based around achieving export targets that the US government wishes to see.

Among the projects to have benefitted from this change - Venture Global CP2, Woodside LNG, Glenfarne Texas LNG and Next Decade Rio Grande Expansion - are slated for first gas production from 2026. By 2028 they could be providing an additional 63 mtpa into international markets. Current demand is around 475 mtpa, which is expected to grow to around 670 mtpa by 2028, according to the Global LNG Outlook 2024-2028, published by the Institute for Energy Economics and Financial Analysis.

However production developments in new markets will face different challenges in terms of infrastructure and project finance. Capacity remains limited in some countries, with congestion causing long wait times for LNG vessels in addition to pipeline issues and storage constraints.

Floating Advantages

Floating LNG has specific advantages in this context. First, it allows developers to access remote reserves that may be unreachable for traditional facilities and second it enables faster development. In cases where onshore gas is not present in high enough quantities to warrant a traditional onshore liquefaction facility, FLNG capacity to scale to provide an opportunity to monetise these resources.

An FLNG facility can be deployed a lot more quickly than an onshore facility. This has the potential to shorten the return on investment cycle, which could lead to accelerated funding approvals, with reduced environmental impact making it easier to get required regulatory approval, all of which make these projects potentially more attractive to investors.

The ultimate ambition would be to develop plug and play solutions and FLNG has the potential to bring LNG export capabilities to a region quickly and with the most viable business case.

Their combination of greater mobility, higher energy efficiency compared to onshore facilities and modular construction means a facility can be built and shipped from one location rather than relying on a more diverse supply chain for onshore construction.

Impacts on Safety

Of significant interest to class is the impact this rapid change may have on the evolution of rules, regulations and technology behind FLNG newbuilds and particularly on conversions.

The potential growth in new FLNG projects in developing markets places a number of first-of-their-kind projects in locations with no previous operational experience with the applicable rules and regulations for this technology.

Projects classed by ABS include innovative and novel concepts, thus prompting close attention from regulatory authorities which have not worked with these types of projects.

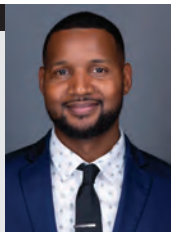
ABS can help project developers present their case with appropriate risk and impact mitigations which will help to streamline the project approval process. With years of experience of being ‘first-to-market’ with FLNG projects, ABS can draw on this expertise to assist project developers.

ABS has experience supporting some of the industry’s most complex FLNG projects working directly with clients and the authorities responsible for regulating these projects. In both cases we provide design approval and certification as well as providing guidance on rulemaking for regulators and training for personnel.

The Author

Roberts

Terrance serves as Global Business Development Manager, Global Offshore, FLNG, focusing on capturing opportunities in the fast-paced FLNG market, by supplying critical risk mitigation guidelines to potential project developers, ensuring their projects adhere to industry regulatory codes and standards.



Tech Files

Latest Innovations & Technologies

World's Most Powerful Methanol Engine

MAN ES will deliver the world's most powerful two-stroke methanol engine in June 2025. The engine, an MAN B&W 12G95ME-C10.5-LGIM (-Liquid Gas Injection Methanol) type rated at 82,440 kW @ 80rpm, is currently being built by Chinese licensee, CSSC-MES Diesel Co., Ltd. (CMD). The engine is the first of 12 bound for a series of 12 × 24,000 teu container vessels currently under construction: seven at Nantong COSCO KHI Ship Engineering Co., Ltd. (NACKS) for shipowner, Orient Overseas Container Line Ltd. (OOCL); and five at Dalian COSCO KHI Ship Engineering Co., Ltd. for shipowner, COSCO Shipping Lines Co., Ltd. Each engine will also feature MAN Energy Solutions' proprietary EGRTC (Exhaust Gas Recirculation Turbocharger Cutout) emissions system, the largest two-string EGR system on a two-stroke engine to date.

Steerprop: Largest Retractable Thruster

Steerprop expanded its range of retractable thrusters with its biggest unit to date. Designed for offshore vessels and workboats, the SP 45 R will be introduced on several offshore, renewables and special purpose vessels.

Working with vessel operators and designers, Steerprop identified that the sealing and locking mechanisms are often a weak point for retractable designs. The patent-pending seal design minimizes downtime by actively managing water ingress, with low maintenance requirements that can be performed from inside the vessel during normal operation. A floating housing moves with the stern tube to keep the seals in contact even at high speeds and sea states, and a simple scraping solution reduces marine growth on the stern tube—a primary cause of seal damage. A hydraulic locking and lifting mechanism ensures maximum reliability and addresses another common challenge for traditional retractable thruster designs—available deck space. The compact, zero-clearance solution fits entirely below the main deck of most standard vessel designs, ensuring that the prime real estate onboard can be fully utilized for the ship's main mission.

Methane Oxidation Catalyst System

Mitsubishi Heavy Industries Marine Machinery & Equipment Co, Ltd. (MHI-MME) have begun demonstration testing for a methane oxidation catalyst system for LNG-fueled marine vessels, being jointly developed with Daihatsu Infinearth Mfg. Co., Ltd.

The catalyst system for the demonstration test oxidizes slip methane (unburned methane) contained in the exhaust gas of marine engines. Methane has a high greenhouse effect among GHGs, so the ability to suppress its emission is a significant advantage of this system.

The methane oxidation catalyst system was developed with MHI-MME's catalyst design and manufacturing technology at its core, combined with Mitsubishi Shipbuilding's shipboard installation technology, and Daihatsu Infinearth's engine optimization technology. Since an initial methane oxidation rate of 70% or higher has been verified in the onshore engine test, the demonstration testing will be conducted continuously for one year.

MHI Group is making strategic efforts to strengthen its energy transition business. MHI-MME and Mitsubishi Shipbuilding are a part of this strategy, and amid the increasing urgency for global decarbonization, will continue to work to reduce GHG emissions from marine vessels, and contribute to the improvement of the environmental performance of ships on a global scale.

Kongsberg's New Electric Towing Winch

Kongsberg Maritime launched a new electric towing winch, powered by a frequency converter-driven electric motor, delivering enhanced operational efficiency and reduced environmental impact compared to traditional hydraulic systems.

Designed for harbor tug applications, the winch offers a pulling force of up to 35 tons and brake holding loads tailored to selected towing ropes. It features frequency converter technology for stepless speed control during rope handling and is available in multiple drum configurations, including single, double, and split drum options.

The robust design incorporates an electric motor, induction-hardened

Tech Files

Latest Innovations & Technologies

gears, and high-quality bearings, ensuring a durable drive line capable of withstanding harsh marine environments. Additional features include a mechanical spooling device for wire winch applications and a quick-release function under three seconds, compliant with IACS rules. Kongsberg Maritime combines winch controls with its Aquapilot thruster control system lever, enhancing operational safety and user-friendliness. This ergonomic design allows captains to manage winch and thruster operations simultaneously, improving situational awareness and control.

MAN L35/44DF CD GenSet Passes Type Approval Test

MAN Energy Solutions announced the successful Type Approval Test (TAT) of its dual-fuel MAN L35/44DF engine for application as auxiliary GenSet and electric propulsion at constant speeds, respectively, of 720 and 750rpm. The TAT involved the testing of both 35/44DF variants, namely the methane-capable 35/44DF CD and the methanol-ready 35/44CD.

Testing took place from April 7 – 11 at the Changwon headquarters of STX Engine in South Korea with the participation of six classification societies.

The L35/44DF CD engine is an upgraded version of the L35/44DF CR engine, first launched in 2015. Among other features, it comes equipped with an ACC (Adaptive Combustion Control) system that monitors the state of combustion in real time for optimal fuel-injection conditions.

The new GenSet aims to reduce ship owners' capital expenditure (CAPEX) and operating costs (OPEX), while remaining relevant for the coming decades. The MAN 35/44DF CD dual-fuel engine is based on the proven MAN 35/44DF CR and MAN 32/44CR engines whose performance has been fully verified over the years through millions of operational hours. MAN Energy Solutions reports that the MAN 35/44DF CD features minimal greenhouse-gas emissions and that, compared with industry standards, it can reduce methane slip by up to 85%.

DynaMoor Mooring Trial Begins

On May 13th, NYK, JERA Co., Inc. (JERA), and Trelleborg Marine & Infrastructure (TMI), a provider of engineered polymer and technology solutions for the marine, infrastructure, and energy industries under the Trelleborg AB group, jointly installed a new DynaMoor mooring system at the coal unloading berth of JERA's Hitachinaka Thermal Power Station in Ibaraki Prefecture.

DynaMoor is a mooring system that reduces ship sway and surge while the vessel is at berth. Trial operations using actual ships have begun, and this is the first time the system has been used in Japan.

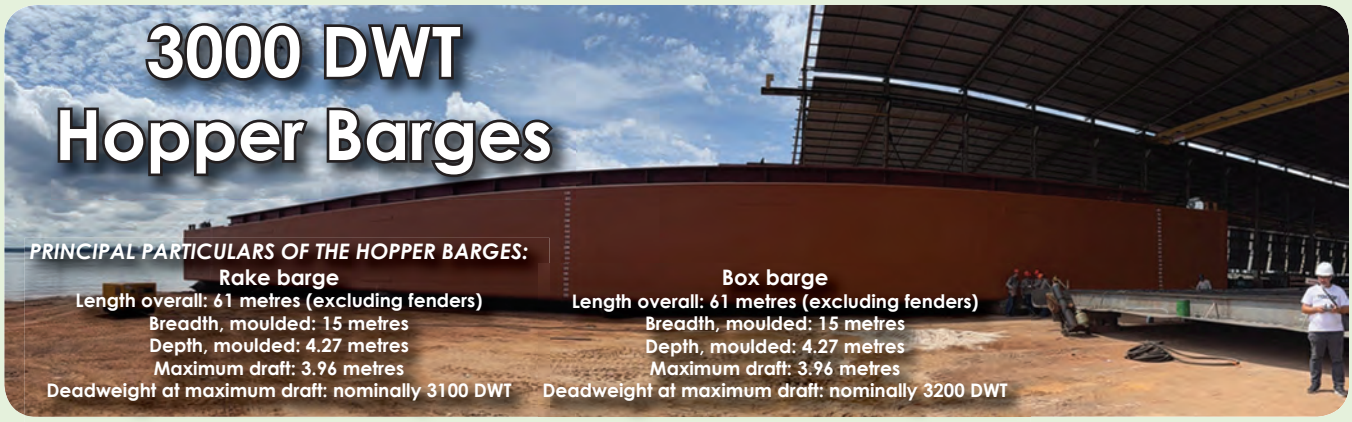
The two DynaMoor units in this trial have been installed at the above berth and will be tested for one year. A motion sensor will be attached to berthed vessels to measure vessel-hull sway and surge when using DynaMoor, and the effectiveness of reducing the motion of berthed vessels and improving the safety and efficiency of port operations will be verified.

Wärtsilä Tapped for Zero Emission Ferry

Wärtsilä will supply the electric propulsion system for three fully battery-electric, high-speed ferries that will operate in the San Francisco Bay area. The zero-emission vessels will be the first full electric high-speed ferries to operate and be built in the USA. The order with Wärtsilä has been placed by the shipyard All American Marine (AAM), on behalf of San Francisco Bay Ferry. Wärtsilä's scope of supply is for the full electric propulsion system inculding the energy and power management system (EPMS), the integrated automation system (IAS), batteries, DC Hub, transformers, E-Motors, and the shore power supply. The equipment is scheduled for delivery commencing in 2026, and the first vessel is expected to join the ferry fleet in early 2027.

In the Shipyard

From Design to Delivery



RAL

A fleet of 3,000-ton deadweight hopper barges, designed by Robert Allan Ltd., was launched at Juruá Shipyard in Manaus, Brazil, marking a milestone in LHG Mining's river transportation initiative in South America.

This inaugural barge is part of a 400-unit fleet commissioned by LHG Mining to enable the efficient, sustainable transport of high-grade iron ore from Corumbá, Brazil, to export terminals in Uruguay. The cargo will travel more than 2,500 km along the Paraná–Paraguay Waterway.

A total of four shipyards across Brazil have been contracted to construct the fleet, each tasked with delivering on the scale and complexity of this transformative project.

Each convoy is comprised of 16 barges (8 rake and 8 box barges) pushed by a high-powered inland RApide pushboat, also designed by Robert Allan Ltd. Each convoy will transport over 50,000 deadweight tons of iron ore, matching the capacity of a typical Supramax ore carrier.

Methanol Fueled Bulk Carrier


NYK Group

A methanol dual-fuel bulk carrier chartered by NYK Bulk & Projects Carriers, an NYK Group company, from Kambara Kisen was delivered at the Tsuneishi Factory in Japan. At the naming ceremony, held in mid-May 2025, Yuko Tsutsui, Managing Executive Officer and Chief Executive of Sustainability & Transformation Headquarters of NYK, named the vessel Green Future. The vessel is the first bulk carrier in the NYK Group to be equipped with a dual-fuel engine that uses methanol and fuel oil.

Green Future is 199.99 meters long, with a deadweight of approximately 65,700 metric tons, and capacity of 81,500 cu. m.

Transfer Boat for Hornsea 2

ESVAGT, OSK Design, and Hvide Sande Shipyard have joined forces to develop a next-generation transfer boat, one that is larger, more robust, and designed to carry more technicians and cargo. ESVAGT helped revolutionized offshore wind operations when it introduced the boat transfer of wind turbine technicians using its purpose-built Safe Transfer Boats (STBs).

These boats filled a critical market need, and today, the STB concept, featuring experienced seafarers and custom-designed boats plays a vital role in enhancing flexibility and efficiency across offshore wind farms throughout Europe.

Now, ESVAGT, in collaboration with OSK Design and Hvide Sande Shipyard, is taking the next step with the STB15: a larger boat capable of transferring more technicians and cargo. In addition to traditional boat landings, it also supports the GUS system, which hoists technicians directly onto the turbine platform.

The Safe Transfer Boat 15 (STB15) is designed for use at the Hornsea offshore wind farms. It will be used to transfer technician, move cargo and spare parts and transport supplies and personnel to shore. Crucially it will be able to transfer cargo and technicians in rougher seas than before, which will expand the potential of using the boat even more.

ESVAGT

In the Shipyard

From Design to Delivery

Main Iron Works Completes 10th Boat for Ingram

Benny Cenac Jr.'s Houma-based Main Iron Works Company completed the 10th boat newbuild for Ingram Marine Group. The first towboat, Adrienne M. Moore was delivered to Ingram on March 30, 2021 with the 10th and last - M/V David North - delivered on January 29, 2025.

M/V David North measures 69 x 30 x 10.5-ft. and is powered by twin Caterpillar C32 800 hp tier 3 diesel engines. It has a pair of Northern Lights 99kw generators. The vessel is considered a fleet boat for Ingram but does have full live aboard details including beds for up to an eight-person crew and is completely Subchapter M compliant. M/V David North will be service the Intracoastal Water Way between Baton Rouge and Houston, as well as the Mississippi River.

The vessel was named after Ingram employee, David North, the General Manager of Customer Services and Logistics. The vessel was designed by Main Iron Works, Ingram Marine Group and Ashraf Degedy, PE.

All vessels were equipped with the following components:

Main Iron Works

CT Marine Twin Diff rudder system; 99kw Northernlights Gen sets (2 generators per vessel); Kemel USA shaft seal systems; Eagle Control Systems sub m compliant steering system; Wintech 40 ton Electric deck winches (2 per vessel); Fast Model L-2x USCG MSD system; Quincy 325 air compressors (2 per vessel); & M&M Bumper fendering.

Floating Wind Installation Vessel Concept

Morek Engineering

A consortium based in South West England, led by Morek Engineering, Solis Marine Engineering, Tope Ocean, First Marine Solutions and Celtic Sea Power unveiled its design concept for a new vessel class for the Floating Offshore Wind (FLOW) market.

The Future FLOW Installation Vessel (FFIV) design incorporates low-carbon fuels, a hydrodynamically optimized hull and expanded mooring capacity. The FFIV concept focuses on a section of the floating wind installation process that is yet to be optimized. It will work with any of the three main anchor types for floating wind turbines being considered by the industry: drag embedment anchors, which require installation by high bollard pull anchor handling vessels, suction piles and driven piles, which require large subsea cranes to install them into the seabed. In each case, the FFIV meets the requirements of the next phase by installing the mooring lines onto the installed anchors, enabling quick connection to floating foundations towed to the offshore site.

The FFIV has been designed to maximize mooring line capacity while minimizing running costs. The selection of azimuth thrusters and reduced resistance to station-keeping and dynamic positioning efficiency is partnered with the alternative fuel choice of methanol.

To maximize mooring line capacity, the FFIV has a large below-deck cable tank for synthetic mooring ropes as well as large chain lockers to hold the km of chain expected for the floating wind industry.

THE U.S. SHIPS FOR AMERICA ACT … *IN A CORKED BOTTLE*

Image courtesy Ricky Hutter/AmTech

As a result of a major White House office wake-up call or Executive Order 14269 determining it is time to start building ships again, Washington DC announced America's maritime industry has been "dangerously declining" and with that decline we have allowed China to become the dominant force in global shipbuilding. Hard to believe that for nearly 65 years we have overlooked how Japan first got ahead of us or the fact that Korea took the lead not soon after Japan. All that progress was ignored prior to anyone worrying about China. What may look like a Rip Van Winkle moment may actually be a four-alarm fire raised by current geopolitical events and our declining Naval power.

The U.S. Navy problems aside, our concern in this Op-Ed is American commercial shipping and shipbuilding efforts. What is disturbing about this legislation is the fact that DOD, MARAD and the GAO all realized the problem decades ago and issued *The Way to Increase U.S. Shipbuilding Productivity in 1976* [***https://www.gao.gov/assets/b-118779-095788.pdf***].

We knew; Washington, DC knew; and the Navy Knew.

The only surprises are who didn't know. From that 1976 report and the $29.8 billion dollars of 1970 era taxpayer money spent, nothing has changed. Including the course of this new legislation. It does not paint revitalization, it paints restriction.

SHIPS for America Act

In April of this year, Senator Mark Kelly (D-AZ), along with two other Senators, reintroduced the SHIPS for America Act (hereafter the ACT) in the U.S. Senate. The initial "Act" was first introduced in December 2024. The reintroduction of two bills was reportedly due to the legislation being presented to the new Congress. However, the revisions added to the legislation indicate other reasons and influences. One thing you can bet on, more revisions

and amendments are forthcoming as the legislation eventually hits the Committees and Senate floor and the ACT either passes or fails.

Taking a deep dive into the 300 pages of legislative language is enough to return you to the Rip Van Winkle nap and at times we wonder who will actually read through all of the provisions. There has been legal analysis provided by a Washington based law firm that is well respected and as a company we know them well. There is no doubt any owning company or private investment group looking to support the legislation will require an enormous education from counsel if and when they look to build or purchase tonnage.

It is a big "IF".

Our opinion is simply a view from mariners on the deck plates and builders & shipyard workers on the drydocks with hope that the effort will lead to U.S. investment in American Shipyards. As of today, ours and others in the financial markets, is simple, the business model numbers don't work. And that is a non-starter for rebuilding our maritime base.

The ACT creates "The Strategic Commercial Fleet Program", a U.S. flag fleet of 250 ships developed over a period of 10 years. Industry has questioned the intent of the legislation simply asking what type of ships would be built. The program and operating agreements favor foreign "reflag" and more or less wraps MSP and TSP into a new-seven-year operating agreement with the "approved tonnage". The USCG reflag requirements were recently "relaxed" again this month to reduce flag costs in a foreign build. Another indication a reflag path will be the road taken towards the 250 number. Before we continue, the industry excitement and fanfare are based upon "rebuilding and revitalizing" our U.S. Shipyard base. That is where the jobs and manufacturing base is created. Re-introducing a reflag commitment is a double-edged sword. And it does not support our long-term battle to build globally competitive U.S. shipbuilding. We can continue with the fact that that the U.S. repair yards are not supported in the legislation. It is a well-known fact in U.S. shipbuilding that "repairs" pay the bills and keeps your work force employed. The Ships Act trades that away.

According to a summary provided by Senator Kelly's office the fleet is comprised of "commercially viable, militarily useful, privately owned vessels."

What the summary fails to present is the bureaucratic operating restrictions, competitive analysis and approval "checklist" the asset needs to pass in order to enter the program or for that matter "compete" on a global basis. Unfortunately, it is difficult to provide a full excerpt from each section. Only a snapshot of language can be provided within our short editorial.

Section 53603 – pages 87-88: "(B) Beginning on the first day of the operating agreement, the vessel will be permanently ineligible for a coastwise endorsement 26 under section 12112 of this title or to otherwise participate in the coastwise trade, even if the operating agreement is terminated or not renewed.

Title V pages 180 – 182 "(f) PILOT PROGRAM FOR VESSELS IN DOMESTIC COMMERCE a vessel qualifying for funding through the pilot program under this subsection shall only be eligible if the Administrator certifies that the vessel of the United States that will be constructed— "(A)(i) will operate in an emerging industry or a new trade lane; "(ii) will not compete with existing vessels of the United States; and "(iii) will not serve a market already served by a vessel of the United States with a coastwise endorsement;

A U.S. built MR 2 product tanker, entering into this operating agreement and capable of carrying military cargo AND holding coastwise privileges would be more valuable than its foreign counterpart. A trade enhancement that would have stirred US investment in that vessel type. Imagine a U.S. built tanker being more valuable commercially simply because the foreign built or reflag tanker cannot trade the coasts. Let's remember, the absence of domestic tanker tonnage is the current price indication to build and the lack of graving dock space to build it.

And how does that "competitive analysis" work? Is the existing ATB with a nine-man crew more competitive than the tanker providing 21 NEW U.S. crew member positions? Is the fact that the tanker carries more cargo and delivers an efficient voyage schedule than a tug & barge? Or the fact that the tanker can be built to meet California CARB regulations and IMO MEPC emissions and our existing domestic "ATB tanker" fleet does not?

Size – & Cargo – Matter

In 1972, the vessel Tokyo Bay was reported as the largest container ship built in Japan at 2,300 TEU. The Matson Aloha Class container vessels scheduled to be built at Hanwha Shipyard are listed as the largest U.S flag-built container ships in 2026 at 3,400 TEU. China and Korea are building 24,000 TEU vessels. This should be an interesting "competitive analysis" discussion for this vessel type as the vessels are also "military useful". The enormous cost differential of the build at Hanwha, recently reported as "climbing" would again place further investment in jeopardy.

U.S. investment would look to build 1000 TEU to 5000 TEU Container feeders to support the requests from the larger U.S. container ports to assist in port congestion mitigation. Global container operators have also looked to develop

"all water" routes along the U.S. Coasts. MarAd's Marine Highway program has been poorly funded and unsuccessful to solve this issue for decades. The container feeder is a second vessel type that may be considered for the legislation program. No different than the tankers, the vessels will not have coastwise privilege and would have a greater value under US flag with the availability to trade the coasts if they did. The competitive analysis with this vessel type? If the business model does not work, the only available trade the vessels could enter without becoming a "stranded asset" is Hawaii, Puerto Rico & Alaska. Needless to say, and fully understanding the restrictions of this legislation, that is not going to happen unless we continue to amend the Act with waivers and further restrictions that specifically block trade to the noncontiguous locations.

Beyond the technical discussions, the Maritime Trust Fund is provided to fund this legislation with taxes and tariffs collected from those Chinese built or operated Post Panamax containerships. Question how many "private investment" funds or companies believe this trust fund could raise the billions of dollars required to revitalize shipyards building Bluewater tonnage. or for that matter if the targeted funds will be traded away in future China negotiations with the White House.

The issues continue beyond the two sample immediate ship types provided and the legislation works to coral new technology under similar competitive comparisons or political restrictions. How do we address carbon capture and the emerging LCO2 vessel technology along the U.S. Coasts? If a vessel receives coastwise privileges, does it deny foreign built tonnage entering the new "trade". Where does LNG and the gas trade stand with a proposed 1% cargo set aside for LNG export? Those ship types alone already have both Administration push backs on climate change and industrial push backs from the major gas suppliers. Strictly for build and operating costs and competitive issues.

Understanding how the foreign ship building investments and freight markets operate, the owners & investors analyze supply & demand, negotiate finance, calculate equity value and take advantage of the cyclical nature of the markets. There are times to build and times to sell. The single most important part of the investment is Cargo. This alone defines commercial viability. At this point in time, the geopolitical issues have not produced the cargo demand.

Are there cargo requirements and business models that would work? Consider how that foreign shipping model is built. With White House discussions in Ukraine, the country will have massive requirements to rebuild the nation. As the Administration looks to rebuild US manufacturing, consider how many Anderson windows, Caterpillar bulldozers, John Deere tractors, U.S. Steel, cement, aluminum and pipe could be provided to support that rebuild with American Security. Next imagine if the White house negotiated all of that product to be carried on U.S. flag built and crewed vessels. Then understand that the majority of that United States cargo can be carried on dry bulk carriers with the addition of container fittings and cargo cranes, also military useful. A past shipbuilding design called "Con Bulkers". Add the fact that this design and vessel type is one of the easiest vessels to be built when considering rebuilding your shipyard base. Look at the historical beginnings of Japan, Korea and China – they all started with bulk carriers. Add to your U.S. shipping model that the rare earth commodities the President is negotiating also needs to be brough home by bulk carrier and the fact that this vessel type also supports Ukraine and grain & agriculture. Our fleet will never be in ballast – we haul cargo on both ends of the voyage. A truly successful shipping model. And the start of module construction in both existing yards looking to get back into new construction and greenfield yards looking to the future.

Building can begin NOW.

Can the cargo model be repeated? We rebuild Gaza and Syria with discussions with Saudi and Qatar. The opportunity provides many "deal making" opportunities for the world to see that America is great again on a global basis all led by American Shipping and shipbuilding. It is not "Sneakers & T-shirts" and we do not have to complete with China during the growth.

The model goes beyond investment capability. It brings American Security with our flag flying on the stern. As former and future mariners we understand and provided the fourth line of defense. Develop the program that lets us play our part and your Navy decisions and budget will have a path to follow to support us in the effort.

If we do not work together as an industry in both commercial and Naval shipbuilding, the ship type decision will become simple.

It is Noah's Ark.

The Author

Kunkel

Robert Kunkel, president of Alternative Marine Technologies and First Harvest Navigation, served as the Federal Chairman of the Short Sea Shipping Cooperative Program under the DOT's MARAD from 2003 until 2008.

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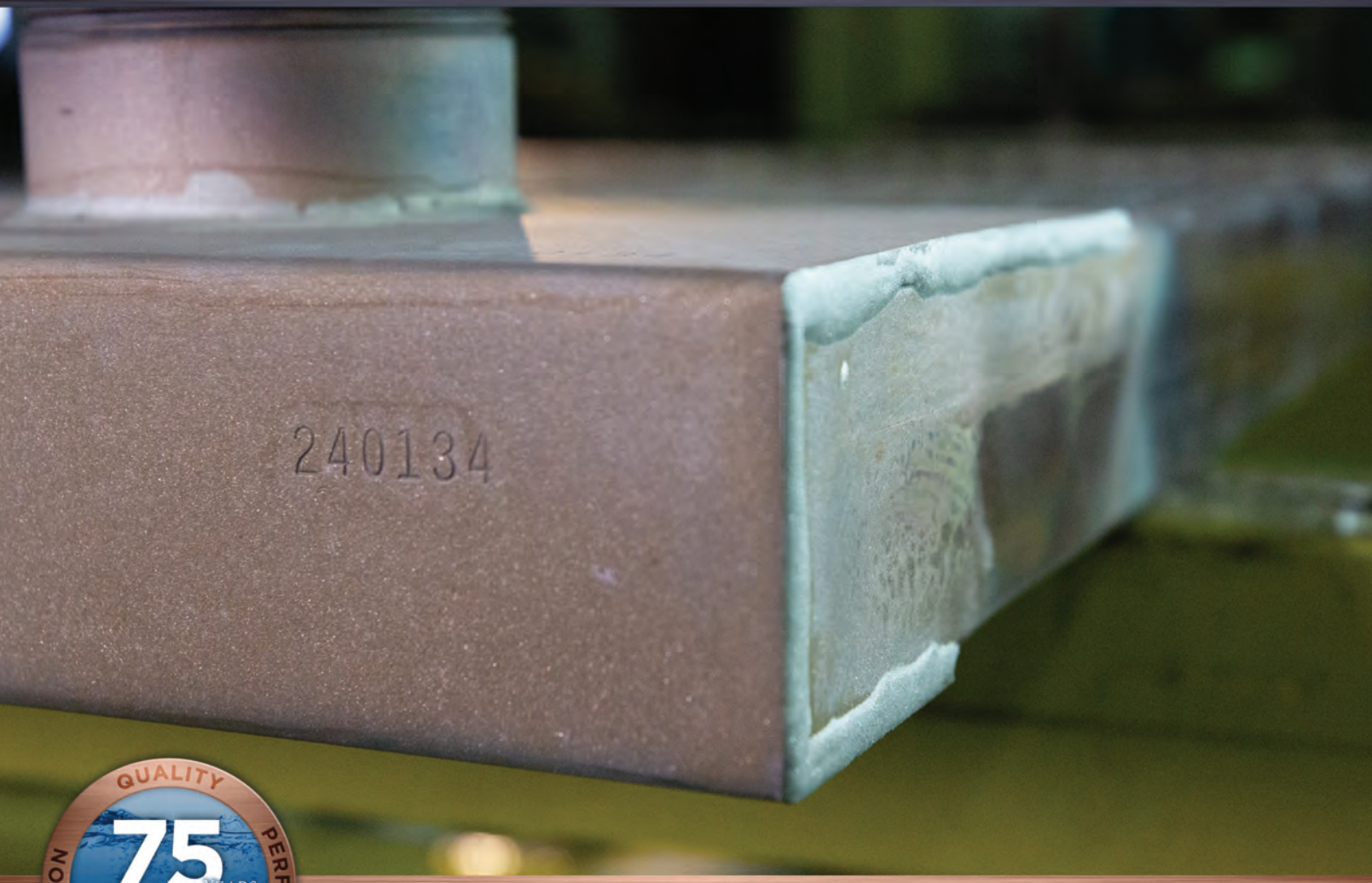

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