Charting a course towards decarbonization

As the offshore wind industry continues to expand, the demand for alternative fuel solutions becomes more pressing. Fuel supply is a critical component in ensuring operational efficiency and meeting environmental goals. To explore the future of fuel supply in offshore wind projects, PES sat down with Nicolaj Splidt Jakobsen and Lennart Larsson, Senior Fuel Suppliers from the Copenhagen office, and James Shiller, Global Lead of New Fuels from the Cape Town office, at Dan-Bunkering. Their combined expertise offers valuable perspectives on biofuels, decarbonization, and the next steps for the industry.

PES: Welcome to you all. To begin, it may be helpful to recap Dan-Bunkering's core roles and strategies in the offshore wind sector.

Nicolaj Splidt Jakobsen: Our primary role is to tailor the right fuel supply chain for our clients' offshore wind projects. Operating a vessel on an offshore wind farm involves various logistical activities, both offshore and in port. Fuel replenishment must be integrated into the schedule early to minimize time lost and maximize time at berth.

Based on our experience in the renewables sector, we have developed a turnkey, end-to-end solution that offers our customers the optimal fuel solution. We assist from the initial stages of budgeting, CO_2 targets and planning, all the way to the installation of the last wind turbine and the beginning of maintenance work.

PES: Could you explain how you help clients meet environmental, social, and governance (ESG) goals?

Lennart Larsson: We tailor solutions to meet clients' targets, ensuring economic viability and operational efficiency. Our proactive approach ensures compliance with EU and IMO regulations, decarbonization, and efficiency. We provide expert guidance, including emission tracking and calculation, strategic fuel supply planning, and continuous optimization to help clients achieve their ESG goals and maintain a competitive edge. By combining their targets with our expertise, we can create a tailored supply chain for future projects.

PES: What major initiatives has your company undertaken to meet its decarbonization goals in the industry?

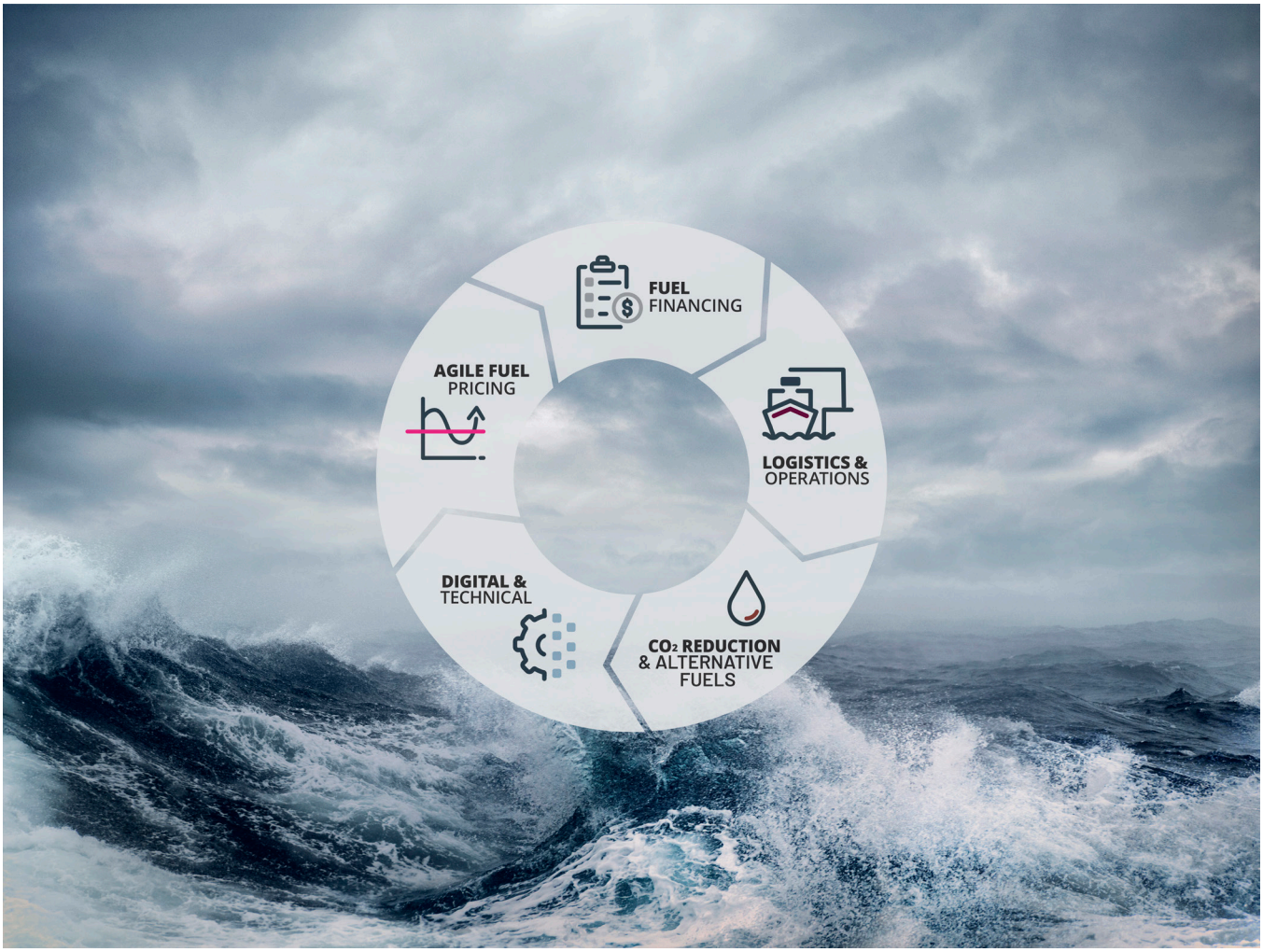
James Shiller: We've established strategic collaborations with refiners and suppliers to facilitate the transition to low carbon fuels for the shipping sector. Since the maritime sector is new to the alternative fuels market, it requires significant groundwork to ensure practical, last mile delivery from storage to ship.

We work closely with clients to pilot biofuel adoption and optimize fuel procurement, offering flexible and reliable solutions to meet their strategic targets. Our partnerships involve continuous monitoring and adjustments to adapt to regulatory and market changes.

While the offshore segment isn't currently included in the regulatory schemes for greenhouse gas (GHG) emissions reduction, that is likely to change soon. Through these collaborations, we provide expert guidance and solutions tailored to each client's unique needs, including detailed emission tracking and fuel supply planning. Our proactive approach not only ensures compliance with evolving regulations but also positions our clients favorably in terms of reducing GHG emissions and increasing efficiency.

PES: Shipowners face various challenges with their decarbonization efforts. How do you help address these?

NSJ: The maritime industry is currently navigating a complex regulatory environment, with an ongoing need to comply with ever-evolving EU and International Maritime Organization (IMO) regulations. Staying informed and adaptable is essential to ensure that strategies remain aligned with these regulatory requirements.



One key development to watch is the expected extension of the FuelEU Maritime regulation to the offshore sector in 2027, which will have a significant impact on the adoption of alternative fuels. Coupled with the EU Emissions Trading System (EU ETS), this regulation offers substantial incentives for biofuels, making them an increasingly attractive and cost-effective blending option for shipowners looking to meet their ESG targets.

PES: Biofuels are essential for energy transition. Do you have an overview of the types of biofuels available and how they contribute to emission reductions in offshore wind operations?

JS: Currently, Hydrotreated Vegetable Oil (HVO) and Fatty Acid Methyl Ester (FAME) are popular drop-in biofuels. Both require minimal or no modifications to onboard fuel systems and behave similarly to gasoil.

HVO and FAME are produced from feedstocks and offer a CO_2 emission reduction of 65% to 95%, based on well-to-wake Life Cycle Assessment (LCA). Second generation feedstocks, made from waste and residue, are particularly promising for marine applications, with the potential for 85% to 95% reduction.

Though the products are similar, there are key differences. For example, HVO has superior cold weather properties compared to FAME, making it more suitable for winter months or colder regions. Additionally, HVO generally has a longer shelf life than FAME. Both have been approved for use by OEMs, provided certain criteria are met.

PES: Has the feedback you've received from clients about the performance and cost of biofuels compared to traditional marine fuels been generally positive?

LL: Yes, the feedback has been positive overall. Transitioning to low carbon fuels, particularly biofuels, is a critical step in the industry's shift toward democratization and biofuels are at the heart of this transition. By implementing a well thought out plan, we can make this shift more cost effective, introducing the product in phases.

Biofuels are fully compatible with regular gasoil, allowing for a gradual integration. For instance, starting with a B10 blend, consisting of 10% biofuel and 90% regular gasoil, can be an effective initial step. Over time, this can evolve into a B90 or even B100 blend, significantly increasing GHG reductions as the shift progresses.

PES: Tell us about the approaches you've adopted to ensure the stability and reliability of the biofuel supply chain.

LL: We start by setting goals for biofuel implementation and outlining the steps needed to meet them, ensuring alignment with maritime regulations. Then, we tailor the plan to accommodate your existing infrastructure, integrating higher percentages of biofuels gradually.

We consider fleet operations and whether using B100 on certain vessels makes sense, especially in regions where biofuels are already available or more cost effective. Regular monitoring and adjustments are also crucial, and crew training on how to handle and use biofuels efficiently. Lastly, engaging stakeholders ensures a smooth transition and provides valuable feedback for continuous improvement.

PES: With the EU ETS and FuelEU Maritime regulations reshaping the maritime industry, do you expect an impact on the adoption of alternative fuels?

LL: Yes, we anticipate a significant impact due to the EU ETS and FuelEU Maritime regulations. Currently, the FuelEU Maritime

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regulation only covers conventional shipping, but it is expected to extend to offshore operations by 2027. We encourage our clients to prepare for this transition now.

These regulatory frameworks will offer substantial incentives for using biofuels, potentially lowering overall costs. By reducing the need to purchase as many EU ETS allowances, alternative fuels become more economically viable. As a result, we're seeing an increasing demand for these fuels as operators and shipowners aim to meet regulatory requirements while optimizing their operational budgets.

PES: How do you help clients navigate the complexities of these new regulations while maintaining operational efficiency?

NSJ: We have a team of experts focused on tracking regulatory changes, ensuring our clients comply effectively. Our position in the supply chain allows us to connect regulatory developments with practical supply chain actions and real-world feedback. This approach ensures safe navigation through changes and optimal solutions based on input from multiple stakeholders.

PES: From your perspective, how should shipowners and operators prioritize immediate actions to advance their decarbonization goals?

NSJ: Establishing strategic partnerships with capable partners is essential. In today's evolving regulatory landscape, no single entity can navigate the complexities of decarbonization alone. Partnering with well-informed suppliers and stakeholders who are already experimenting with alternative fuels can significantly minimize risks. While drop-in biofuels offer a plug-and-play solution, it's crucial to go beyond the surface. Machinery compatibility tests are a must, as they reveal potential adjustments needed to optimize engine performance and fuel efficiency.

It's also vital to invest in crew training, ensuring the team understands how to operate the new systems safely and efficiently. Once these steps are in place, you can tailor your supply chain to better support your ESG targets while staying ahead of future regulatory demands. It's about laying a solid foundation today to avoid operational and compliance challenges tomorrow.

PES: Based on Dan-Bunkering's test runs with biofuels and other alternative energy solutions, which lessons do you think have been most significant?

LL: One of the biggest lessons we've learned is the importance of challenging conventional assumptions. Many companies transitioning to biofuel automatically lean towards HVO products, primarily because they are marketed as the cleaner, high-performance option. However, they often overlook the potential benefits of FAME. It's more cost-effective and can deliver similar results if the vessel's technical specifications allow it.

The key here is proper maintenance. If a ship's engines and fuel tanks can be properly cleaned and maintained, FAME becomes a viable and economical alternative. That's why we always encourage our clients to thoroughly assess their equipment and operational routines before making a decision.

It's about making informed choices rather than defaulting to the most popular option. Our role isn't just to supply fuel; it's to help our clients navigate the nuances of each option so they can achieve their decarbonization goals more efficiently.

PES: It sounds like strategic foresight and operational flexibility are crucial for a successful transition.

LL: Absolutely. Decarbonization isn't just a technical challenge, it's a strategic one. Operators need to be open to experimenting with different solutions while maintaining operational flexibility. That's why we emphasize strategic collaboration. When shipowners partner with suppliers who are actively testing and validating new fuel technologies, they gain access to valuable knowledge and competitive advantages.

In the end, it's not about committing to one solution but about staying adaptable and informed as the landscape continues to evolve.

PES: Thank you all for sharing your valuable insights into the offshore wind sector and biofuels. Your leadership in advancing decarbonization is truly inspiring, and we look forward to watching how your continued innovation shapes the future of the maritime industry.

dan-bunkering.com

Lennart Larsson

Nicolaj Splidt Jakobsen

James Shiller