2024 Sustainability Report



Delivering energy for the world today, and finding solutions for tomorrow

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This report provides an overview of BW Group's activities relating to environmental, social, and governance (ESG) matters. It supplements the reports published by BW Group affiliated companies.				

While BW Group companies report similar metrics, each company's results must be evaluated in the context of its respective segment, as vessel size, voyage length, and duration in port all vary considerably.

Chairman's Message

BW Group is committed to continuous improvement on environmental, social and governance matters. This report highlights the progress we are making in these areas.

One of the strengths of the BW network of companies is that we have multiple affiliates who are each working to find solutions. This allows us to multiply our efforts through distributed development and shared learning.

In parallel with operational efforts to minimise our environmental footprint and improve social dimensions, we have been investing in companies that support the energy transition. Significant strides have been made across solar, wind, batteries, and we are also growing platforms in the circular economy. Technology is being applied to accelerate these developments.

Transition will not happen overnight. But like all human achievement, incremental progress will lead us to where we want to be. BW is working hard to get there, with the help of teams and partners around the world.

Andreas Sohmen-Pao

Chairman, BW Group



Business Overview

BW Group is a leading global maritime company involved in shipping, floating infrastructure, deepwater oil and gas production, and new sustainable industries.

Vision

Best on Water

Mission

Delivering energy for the world today, and finding solutions for tomorrow

Values



Collaborative

- We engage our customers to find solutions together
- We interact positively and constructively with our colleagues
- We are open and authentic in everything we do

Ambitious

- We recognise that to be our customers' first choice we must be responsive and excel in what we do
 We challenge our
- own performance and goals, as individuals and as teams
- We give and we value honest and respectful feedback

Reliable

- We deliver on our promises to customers and colleagues
- We recognise that accountability and reliability are essential for success
- We act with integrity and target Zero Harm

Enduring

- We serve our customers with a longterm perspective
 We are committed
- to sustainability and positive impact
- We are attuned to the changes around us, and adapt to stay relevant



Energy

BW Solar

Developer of solar PV and battery energy storage systems

BW ESS

Developer, owner and operator of battery energy storage systems

BW Ideol

Developer of floating foundations for offshore wind, including design and execution

BW Digital

Owner and operator of the Hawaiki subsea cable and cable landing stations

BW Water

Leading supplier of water treatment systems for industrial and municipal markets

Cadeler

Owner and operator of the world's largest fleet of Wind Turbine Installation Vessels (WTIVs)

Corvus Energy

Leading supplier of battery energy storage and fuel cell solutions for the maritime industry



04



BW Affiliated Companies

















BW LNG

A leading owner and operator of Liquefied Natural Gas (LNG) vessels and Floating Storage and Regasification Units (FSRUs)

BW LPG

Owner and operator of the world's largest fleet of Very Large Gas Carriers (VLGC)

BW Epic Kosan

Owner and operator of the world's largest fleet of pressurised gas carriers for LPG and petrochemicals

BW Offshore

A leading owner and operator of floating production solutions to the oil and gas industry

BW Energy

Developer, owner and operator of oil and gas fields in Gabon, Brazil and Namibia

BW Dry Cargo

Owner of a fleet of modern dry bulk carriers

Hafnia

A leading owner and operator of product and chemical tankers

Navigator Holdings

Owner and operator of the world's largest fleet of handysize carriers for LPG, liquefied ethylene, ammonia and other petrochemical gases



01 Environment

02 Social

03 Governance

04 Appendix: ESG Data

Improving Asset Footprint

Optimising Operations

The Group has continued to increase its focus on sustainability initiatives and investments. These initiatives have been successful in decreasing average emissions and improving carbon intensity across the Group's fleet.

BW LNG

From 2023 to 2024, the average Carbon Dioxide (CO₂) emissions reported for the LNG fleet was reduced by 5.7%. Average emissions of Sulphur Oxides (SOx) and Nitrogen Oxides (NOx) showed a reduction of 26% and 11%, respectively, both due to increased share of LNG as fuel. Annual Efficiency Ratio (AER) increased by 3.2%, while the Energy Efficiency Operational Index (EEOI) increased by 4.9% due to increased waiting (idling) time for the fleet.

BW's strategy

To ensure we live up to our vision and mission, we must continue to deliver the energy the world needs today while working on solutions for the future. We continue to do this through a dual focus on reducing the environmental impact of our current business and investing in renewable technologies that support a circular and sustainable economy.

We strive to minimise our environmental footprint and have decreased average emissions per vessel across our businesses. We are on track to meet the International Maritime Organization (IMO)'s environmental goal of a 40% reduction in carbon intensity by 2030 and a 50% reduction in total annual GHG emissions by 2050, compared to 2008 levels.



Potential fuel savings per voyage from voyage optimisation technologies

↓ 5–10%

Average reduction in SOx emissions from 2023 to 2024 across BW LNG and BW Dry Cargo fleets

Route and speed optimisation

In addition to regular maintenance of our existing fleet, BW optimises vessel efficiency by ensuring our ships travel on the most efficient routes at the most efficient speeds.

Through harnessing technology and meteorological data to conduct weather routing and regular voyage prognoses, BW ensures the scheduling of our fleet is effective and accurate. BW also endeavours to arrive in ports on time to avoid rushing to arrive, near-shore idling and resultant emissions.

In 2025, BW LNG intends to trial new machine learning based software focusing on voyage and boiloff gas optimisation. This will allow better data-driven decision support for both charterer and owner towards driving reduced emissions.

Fuel and emissions savings

Latest ME-GI vessels with improved hull and propeller design improved performance, and resulted in reduced methane slip by:





Minimising methane slip

BW's newest generation LNG carriers are equipped with the latest technology to address environmental issues. The vessels use a MAN ME-GI engine, which, combined with the addition of shaft generators and low methane slip, has reduced the ship's methane slip by 87% since our first generation ME-GI vessels and up to 11 times less than first generation X-DF LNG carriers.

As part of BW LNG's commitment to reduce our carbon footprint and emissions, in 2024 we targeted to optimise the performance of our ME-GI fleet and reduce operational costs by leveraging advanced analytics and vessel-specific insights. The deployment of new Power BI dashboards has helped us to identify key areas for improvements in generator performance, HiVAR operations, and PRS/FRS efficiency.

In mid-2025, we plan to introduce a set of operational instructions designed to reduce average fuel consumption by 2–5 metric tonnes of LNG per day and reduce methane slip by 20–30% during HiVAR operation. When implemented, this is expected to achieve an 8% annual reduction in methane emissions while vessels are in transit.

Anti-fouling paints

BW is committed to continuously improving the efficiency and environment footprint of its fleet. These efforts include optimising fuel consumption through advanced engine management, waste heat recovery, and the implementation of fuel-saving devices and technologies.

In 2025, BW LNG will work together with paint manufacturers for high-performance anti-fouling coatings across our fleet. By combining premium coatings with cost-effective application, we maintain optimal hull performance and energy efficiency throughout the drydocking cycle. This underscores BW LNG's focus on minimising vessel emissions while delivering significant fuel savings for our clients.



Waste management

BW places great emphasis on the responsible disposal of waste onboard to avoid harming the marine environment.

We do this by creating vessel-specific water and waste management plans, conducting drills to prepare for unplanned events, and encouraging suggestions from our employees on methods to further reduce our footprint.

Each of our vessels have a class-approved Ballast Water Management Plan that ensures ballast water and sediment from vessels are handled in a safe and environmentally-friendly manner, in compliance with the IMO Ballast Water Management Convention.

Recycling of ships

At the end of a vessel's commercially viable life, we ensure it is recycled responsibly in a manner that minimises impact to the environment and to human health. BW takes this responsibility seriously and closely manages and monitors the entire process.

We select only ship recycling facilities that are ISO 30000 certified, approved by a class society, and in full compliance with the Hong Kong Convention. When possible, we pre-inspect the facility and ensure a BW representative on-site with stop-work authorisation throughout the demolition process. To support the recycling facility, BW prepares an Inventory of Hazardous Materials document (IHM) and jointly formulates a plan for safe and environmentally sound decommissioning of the vessel.

Retrofitting Existing Assets

High-speed connectivity

As part of greater digitalisation efforts, BW is driving projects to enhance connectivity, IT infrastructure, and cybersecurity on our vessels. This will future-proof our vessels and enable innovation through easier access to piloting and faster roll-out of new solutions.

In 2023, BW LNG, BW LPG and Hafnia successfully completed the fleetwide installation of Starlink on our in-house vessels, enabling 24/7 high-speed connectivity worldwide. This complements existing traditional onboard connectivity solutions such as VSAT.

Starlink provides fast, reliable internet on all business critical websites and applications without disruptions. This has reduced connectivity-related issues by 80% and offers speeds of up to 150Mbps with low latency. In addition, Starlink is able to solve the challenges faced on certain routes with blind spots and loss of connectivity.

Starlink also provides seamless connection for real-time video conferencing capabilities. This facilitates ship-to-shore correspondence, and also enables our seafarers to stay connected with their loved ones and families.



Enhancing data quality and operational efficiency

In 2024, BW LNG began phasing in a new voyage reporting system across its fleet, advancing its commitment toward smarter, more sustainable operations. Utilising a new solution from Oceanly, this integrates real-time sensor data directly into vessel reports, with the goal of significantly reducing manual input while enhancing data quality.

With approximately 60–70% of report fields now automatically populated, the system enables more efficient reporting and allows for robust data validation. Crew input and oversight remain critical in ensuring high data accuracy and operational relevance.

Beyond streamlining reporting processes, the platform is designed to drive performance improvements. By analysing energy use and emissions data, it identifies operational inefficiencies and offers actionable insights to reduce the environmental impact of our LNG fleet.

Following a successful pilot involving LNG vessels BW Cassia and BW Pavilion Vanda, the platform showed strong potential and effectiveness for implementation across the entire fleet. The voyage reporting system will be rolled out across BW LNG's whole fleet, including Floating Storage and Regasification Units (FSRUs), by mid-2025.

This project demonstrates BW LNG's commitment to continuous improvement and responsible fleet management. By leveraging advanced technology and innovative solutions to optimise operations, the company is actively supporting its decarbonisation goals and working toward a more sustainable and datadriven future.

Generative Al

BW LNG is exploring Generative Artificial Intelligence and Large Language Models. BW LNG has already launched an internal ChatGPT-style application LuminAl, which is used to handle internal queries from operational documents and provide real time AI assistance for crew. For example, crew will be able to submit queries on their cargo systems and operation manuals. In 2024, BW LNG identified retrofit solutions to further enhance competitiveness and future-proof its fleet while reducing the overall carbon footprint. Working closely with charterer and joint-venture partner Pavilion Energy, BW LNG will install subcoolers on three vessels, BW Pavilion Vanda, BW Pavilion Leeara, and BW Pavilion Aranda. This initiative is aligned with BW's commitment to technical and operational excellence.



In 2025, the three vessels will be retrofitted with subcoolers from Air Liquide, supported by EPC contractors Hanwha Power Systems and Hyundai Marine Solutions. The installations will be carried out at the Yiu Lian Shipyard in Shenzhen, China, over an estimated 45-day period.

The subcoolers enhance cargo handling efficiency by drawing LNG from the tanks, cooling it further, and reintroducing it to the cargo. This process reduces boiloff gas by around 2.1 tonnes of LNG per hour, contributing to lower fuel consumption and emissions. This retrofit represents a key milestone in BW LNG's drive to improve energy efficiency across its operations, while delivering more commercial value for charterers.

By investing in advanced retrofit solutions, BW LNG reaffirms its commitment to sustainable growth — enhancing value for customers while proactively preparing for a more complex regulatory and emissions landscape.

1	4		BW Sustainability Report 2024		01 Environment
	Designing Fuel- Efficient Vessels		When retrofitting at operations are not the most efficient a we can.	nd optimising enough, we build nd modern vessels	
;	Specific features				
		Mewis ducts before propellers	$\bigwedge_{\longleftrightarrow} \rightarrow \bigwedge$	Grey water modification	
	$ \widehat{\mathbb{S}} \to \widehat{\mathbb{S}}$	Propeller boss cap fins		Waste heat recovery unit for generators	
		Increased propeller diameter		Twisted leading edge rudder bulb	
	$\bigwedge \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$	Variable frequency drive for big fans, pumps and steering gear		Ballast water treatment systems	
		Fixed online PMI system for optimising main engine fuel consumption		Advanced hull design, hydrodynamic, computational fluid dynamics optimisation	
		De-rated main engines for improved fuel efficiency		Advanced hull anti-fouling paint	

Keeping the hull clean with ShipShave

In 2024, BW LNG ramped up efforts to improve hull efficiency by exclusively opting for high-performance coatings tailored to the future operational profiles of our vessels. However, we also recognise the opportunity to do more to maintain high-level vessel hull performance during the dry docking cycle through proactive hull maintenance.

We launched a pilot programme using ShipShave's In Transit Cleaning of Hull (ITCH) technology. This innovation approach allows for hull cleaning while the vessel is sailing, and requires no fixed installation and minimal scheduling or complex planning. The system offers quick deployment and helps prevent marine growth, thereby keeping the hull consistently clean.

Building on the initial trial, two additional vessels – operated in partnership with Pavilion Energy (now a member of the Shell Group) – are scheduled for ShipShave installation in 2025. While it is still early to quantify the impact across our fleet, independent studies verified by DNV have shown potential fuel savings of 5–16%. Initial observations from our pilot indicate promising results.

Advancing decarbonisation

In 2024, BW LNG embarked on a joint initiative with BP to explore opportunities for lowering our environmental footprint. With five BW LNG vessels currently on charter to BP, both parties engaged in a vibrant dialogue spanning nine months. During this period, we jointly examined multiple avenues to drive efficiency, including vessel retrofits, advanced hull coatings, hull performance optimisation, and new vessel design concepts.

The collaboration explored a range of decarbonisation opportunities. Two key areas were identified as the most impactful drivers: hull performance and vessel design. BP had played a direct role in selecting premium hull coatings specifically matched to future vessel operational profiles ahead.

By working closely with clients who share our ambition for a lower-carbon future, we continue to advance sustainable shipping solutions and maintain our resilience in a changing energy landscape.

Safely Delivering Cleaner Fuels for a Better World

Alternative Fuels

At BW LPG, sustainability is a core principle that guides long-term strategy. As the world's leading owner and operator of Very Large Gas Carriers (VLGCs), including the largest number of LPG dual-fuel powered VLGCs, we recognise our responsibility and capacity to drive positive change.

Cleaner fuels for a better world

Scope 1 GHG emissions (whole fleet)

From 2019 baseline

Carbon intensity index (owned)

6.3gCO₂ / Tonne-nautical mile

Vessel energy consumption

3% Compared to 2023

1. The 2019 baseline has been adjusted to include the recently acquired Avance Gas vessels.

In 2024, BW LPG further diversified across the LPG value chain to capture greater value across different segments as part of its strategic business transformation. Today, BW LPG is built around three distinct but inter-connected units: VLGC shipping, LPG trading and onshore distribution.

BW LPG's ESG and overall business strategy is centred around fostering sustainable growth and creating long-term shared value, in line with the United Nations Sustainability Development Goals. In 2024, BW LPG achieved a significant milestone of 11% reduction in emissions and energy consumption, as compared to the 2019 baseline. BW LPG also realised cost savings of US\$11 million by implementing weather routing and leveraging LPG as fuel over conventional fuel. Beyond fuel transition, BW LPG has been investing in optimising hull performance to enhance fuel efficiency for the past four years.

By managing waste and water responsibly, BW LPG minimises its environmental footprint and promotes resource efficiency. BW LPG adopts best practices to reduce waste generation, enhance recycling efforts and ensures the sustainable use of water across its operations, supporting a healthier marine ecosystem and a cleaner planet.

BW LPG's commitment to cleaner energy is reflected in the company's updated purpose and vision: "Best on water with cleaner energy" and "Delivering energy for a better world." BW LPG is determined to lead the transition towards cleaner energy solutions and to be a trusted, transparent and reliable partner for its stakeholders. In 2024, Hafnia continued to set new benchmarks for sustainable shipping through its biofuel innovation efforts under the Hafnia Bunker Alliance and the successful delivery of its fourth dual-fuel LNG vessel.

Hafnia, a leading global product and chemical tanker company, took delivery of the Hafnia Lillesand in March 2024. This is the final vessel in a series of four Aframax type LR2 vessels. In 2023, the three sister vessels delivered were Hafnia Languedoc, Hafnia Loire, and the Hafnia Larvik. The four vessels are time chartered out to longstanding customers TotalEnergies and Equinor and are all equipped with cleaner dual-fuel propulsion technology.

These four dual-fuel LNG vessels, equipped with Liquified Natural Gas (LNG) propulsion technology,



are part of Hafnia's transition to greener fuels. The vessels are fitted with high pressure MAN ME-GI engines and achieve a methane slip of less than 0.2%, which is considered a 70% improvement from LNG low pressure engines.

Adopting Liquefied Natural Gas (LNG) as a fuel aligns with Hafnia's sustainability values and ambitions for a greener future. Switching to LNG as a fuel provides significant benefits, such as improving overall air quality and reducing GHG emissions. LNG is widely regarded as a promising marine fuel helping the shipping industry move towards its goal of a 50% reduction in GHG emissions by 2050.

LNG acts as a fuel that moves shipping towards its decarbonisation goals in the interim, in anticipation of hydrogen and ammonia becoming commercially viable. Compared to ships powered by traditional fuel oil, LNG as a marine fuel typically results in 97% lower Sulphur Oxide emissions, 97% lower Particulate Matter, 85% lower Nitrogen Oxide, and up to 20% lower overall GHG emissions.

Fuel and emissions savings by Hafnia

From 2023 to 2024, Hafnia's fleet saw a reduction of:

2.3% Lower SOx emissions intensity 2.1% Lower NOx emissions intensity

Lower overall GHG emissions intensity

Note: Emissions intensity is calculated on an equity basis, reflecting our share of our vessels and is expressed in deadweight tonne-mile.

Innovation Studio 30 50

In collaboration with Microsoft, Wilhelmsen, IMC Ventures, and DNV, Hafnia launched Studio 30 50 in 2023 an end-to-end digital venture studio designed to scale MaritimeTech solutions. The initiative aims to bridge the gap between established corporates and agile startups to grow sustainable ventures. Since its launch in Singapore in 2023, Studio 30 50 has worked with 19 preidea founders and six pre-revenue startups, developing innovations in crew training, safety and engagement, predictive vessel maintenance, marine insurance, and circular economy solutions for maritime operations. In 2024, the studio expanded to Europe with the launch of its first startup cohort in Copenhagen.

Driving decarbonisation through data

To demonstrate readiness for EU ETS and CII requirements, Hafnia together with DNV, developed a tool capable of tracking vessels' emissions on a voyage basis, enabling accurate communication of data for regulatory environmental requirements.



Preparing for alternative fuel propulsion

Alternative forms of propulsion are high on the Hafnia transition agenda, exploring biofuels and ammonia for bunkering needs.

In August 2024, Hafnia Bunkers supported Swire Shipping's B24 biofuel trial on the Sun Chief Express Ocean service, in partnership with Chimbusco Pan Nation Petro-chemical Co. In the trial, MV Suva Chief was bunkered in Hong Kong with B24 biofuel, a blend of conventional fuels and sustainable biodiesel of waste origin. The result was an estimated 15% reduction in wellto-wake emissions.

The Hafnia Bunkers team are actively sourcing biofuel in response to the evolving customers' needs of the Hafnia Bunker Alliance.

Hafnia is also working with DNV and Lloyds Register to assess the possibility of using ammonia as a bunkering fuel.

In 2023, Hafnia announced a joint venture with French partner Socatra for the order of four 49,800 DWT dual-fuel Methanol Chemical IMO-II Medium-Range (MR) newbuilds. The newbuilds are scheduled for delivery in 2025, and 2026. The first vessel, Ecomar Gascogne, was delivered in January 2025. The use of green methanol onboard eliminates local pollutants, including SOx and Particulate Matter (PM), cuts NOx emissions by 60%, and reduces CO₂ emissions by close to 100% on a tank-to-wake basis versus conventional marine fuels.

Hafnia has conceptualised designs for both Liquefied CO_2 carriers (LCO₂) and Very Large CO_2 carriers (VLCO₂) intended for the medium and long-range transport of CO_2 .

Investing in ammonia production and transportation

Hafnia, together with ExxonMobil and MOL, have invested in Clean Hydrogen Works to support the development of Ascension Clean Energy (ACE), a largescale clean hydrogen-ammonia production and export facility located in Louisiana. Subject to Final Investment Decision (FID) in the second half of 2025, the goal is to produce ammonia for export to Europe and Asia. In addition, subject to FID, Hafnia intends to construct and take delivery of two to three Very Large Ammonia Carriers (VLACs) by 2029, aligned with the start of ammonia production.



Towards Zero-Emission Shipping

Investments in Technological Innovations to Increase Operational Efficiency



In 2024, Navigator Gas strengthened its commitment to low-emission maritime solutions through successful ammonia trials in Western Australia.

On 14 September, the company participated in ship-toship (STS) ammonia transfers at the Port of Dampier, led by the Global Centre for Maritime Decarbonisation (GCMD). The trials featured Navigator Global, a 22,500 cbm ammonia carrier, and Green Pioneer, a 35,000 cbm ammonia carrier owned by MOL.

Conducted under stringent safety protocols with support from Australian Government agencies and Pilbara Ports, the operations aimed to demonstrate the viability of ammonia bunkering. Approximately 4,000 cbm (2,700 tonnes) of ammonia was transferred from Green Pioneer to Navigator Global and back, with each operation lasting around six hours and closely simulating real-world bunkering conditions.

Navigator Gas, in which BW Group holds a 22% stake, played a critical role in providing technical and operational support throughout the trials. Yara Clean Ammonia (YCA) supplied the ammonia. The insights gained from these trials are expected to contribute to GCMD's broader initiative of promoting ammonia as a viable marine fuel and advancing safe bunkering practices globally.

Ammonia presents a strong potential as a zerocarbon fuel due to its scalability and comparatively lower production costs. The success of the Pilbara trials establishes a solid foundation for developing ammoniafuelling capabilities in the region and contributes to global decarbonisation efforts.

Navigator Gas remains dedicated to supporting the transition to low-emission fuels through continued collaboration with industry partners and investment in ammonia bunkering infrastructure. These efforts align with the company's strategic priority of promoting sustainable shipping and advancing the industry's progress towards zero-emission operations.

In the eightieth session of the International Maritime Organization ('IMO') Marine Environment Protection Committee ('MEPC' 80) held in July 2023, a revised GHG Reduction Strategy with more ambitious targets was adopted. BW Epic Kosan is committed to meeting these targets as early as possible by investing in technology to enhance vessel energy efficiency, digitalisation, and improved newbuild designs to lower GHG emissions at sea and in port.

BW Epic Kosan continues to drive decarbonisation efforts in close collaboration with clients and industry partners. Over the past year, opportunities in the LCO₂ and green ammonia segments have advanced further, leveraging our in-house technological expertise built on decades of experience in managing complex LPG and petrochemical operations - always with safety at the core.

A major milestone in 2024 was the signing of an MoU with Copenhagen Infrastructure Partners, reinforcing our commitment to developing handy-sized ammonia carriers ranging from 9,000 cbm to 35,000 cbm. These vessels will be equipped with dual-fuel ammonia engines and bunkering capabilities.

Similarly, significant progress has been made in the LCO₂ segment, with discussions advancing steadily, as evidenced by our shortlisting for projects across Europe and Asia. These projects will continue to be developed in collaboration with trusted partners throughout the coming year.

Looking ahead to 2025, BW Epic Kosan sees it as a pivotal year to solidify commitments and drive the delivery of transportation solutions in the LCO₂ and green ammonia segments - many of which align with key milestones leading up to 2030.

Ultrasonic transducers

Eight vessels are equipped with HASYTEC's Dynamic Biofilm Protection Intelligent ultrasonic transducers to keep their propellers and sea water cooling system free of marine growth and biofouling. This also helps to reduce bunker fuel consumption. BW Epic Kosan plans to fit these on 10 more vessels in 2025.

Each single transducer measures the impact of its installation environment. This includes factors such as the temperature, the material composition and thickness, and the viscosity and temperature of the medium. By leveraging artificial intelligence, the transducer dynamically adjusts the ultrasonic sound waves it generates to adapt to the ever-changing environmental conditions.

These transducers produce ultrasonic sound waves which create resonance vibrations in the propeller blades, protecting the blade surface from biofouling. Ultrasonic transducers are also being used to keep sea chests and sea water cooling system clean. Annual bunker savings of approximately 1% is expected for each vessel.

XGIT-Prop coating for propeller

The propellers of four vessels are coated with a graphene-based hard fouling-release biocide-free coating that improves the propulsive efficiency and protects the propellers from biofouling. This coating also helps in reducing underwater radiated noise. Annual bunker savings of around 2% per vessel are expected. BW Epic Kosan plans to coat the propeller of eight more vessels in 2025.



XGIT-Fuel coating for hull

Two vessels have zero-biocide hard foul-release coating applied on the vertical side of the hull and flat bottom. This coating decreases the friction experienced by the hull, reducing the drag through water. These coatings are highly durable, and do not leach any biocides or silicone oils into sea. The coatings also reduce underwater radiated noise by the vessel. Annual bunker savings of more than 5% per vessel are expected.

Emerson Frugal SmartPropulsion

One CPP propeller-fitted vessel has been retrofitted with the Emerson Frugal SmartPropulsion system. This system integrates with the propulsion control to regulate the pitch and RPM of the propeller, ensuring constant power and speed over ground, while optimising specific fuel consumption. Powered by artificial intelligence, the dynamic adjustment of pitch and RPM of the propeller enables continuous real-time optimisation. The SmartPropulsion system is expected to deliver annual savings of 7–8%. Plans are in place to install this system on two more vessels in 2025.



Hull grooming robot

Two vessels are equipped with hull grooming robots from Aliciabots. Both vessels have zero-biocide, hard foul-release coatings that require regular maintenance to manage biofouling. The robots can be operated either by the ship's crew or remotely by the Aliciabots team. This innovative solution helps prevent increased fuel consumption caused by biofouling and reduces the harmful impact on ocean biodiversity.

Frese FUELSAVE

One vessel has been retrofitted with the Frese FUELSAVE system for its engine cooling water system. This solution uses a combination of variable frequency drive motors for sea water cooling pumps and Low Temperature Fresh Water-Cooling pumps, with flow control valves. The superior flow management system uses well-proven differential pressure control and balancing, creating a simple yet highly energy-efficient cooling water system. The system is expected to deliver annual bunker savings of 4–5%. Plans are underway to fit this system on three more vessels in 2025.



Contracted loaded tip ('CLT') propellers with advanced propeller boss cap fins ('PBCF')

Two vessels are retrofitted with contracted loaded tip propellers and advanced propeller boss cap fins to improve their propulsive efficiency. The CLT propeller reduces the tip vortex, and the advanced PBCF reduces the hub vortex downstream of the propeller. Moreover, the under pressure on the suction side caused by a CLT propeller is lower than an equivalent conventional propeller, while the overpressure on the downstream side is much higher. This increases the propeller thrust and the expected bunker savings is 6–7% per annum per vessel. There are plans to fit them on two more vessels in 2025.

Silicone paints

BW Epic Kosan uses ultra-premium soft-fouling release silicone paints from Hempel for the hull coating of most of their vessels. As a result, their vessels experience reduced frictional resistance at sea, reducing fuel consumption and greenhouse gas emissions by approximately 5–6%. Furthermore, silicone paints prevent marine organisms from growing on vessel surfaces due to their smooth foul-release surface properties — unlike the toxic chemicals from biocidal paints, which could have adverse impacts on marine life.

High-frequency data

IoT sensors fitted on BW Epic Kosan ships provide high-frequency data for optimised hull performance management, engine fuel consumption optimisation and for emissions management.

Weather routing and voyage prognoses

Weather routing and voyage optimisation are performed for all BW Epic Kosan vessels to optimise vessel efficiency. Third-party software is also used by operators and ship staff.

Future plans

BW Epic Kosan will continue with their strategy of using ultra-premium hull coatings, and retrofitting more energy saving and propulsion improvement devices to make their vessels more energy-efficient.

- Ultra-premium coatings.
- Propulsion improvement devices like CLT propeller with PBCF and Mewis ducts.
- 'Hull grooming' robots.
- Ultrasonic transducer for prevention of biofouling of sea water cooling system and propeller.
- 'Frese FUELSAVE' system.
- 'Emerson Frugal SmartPropulsion' system.
- Wind Assisted Propulsion System BW Epic Kosan plans to retrofit a suction sail on one of their vessels. The system is estimated to help the vessel in saving 5–10% of sailing fuel consumption, depending upon expected route.
- ✓ Biofuel − BW Epic Kosan also plans to start using biofuel blends for some vessels.

Investing in Sustainable Technologies

BW Group continues to invest in innovative technologies that accelerate the global energy transition and support a cleaner, low-carbon future. Through our affiliates, we are advancing futureready solutions across solar, wind, battery storage, water treatment, and digital infrastructure.



BW ESS

BW ESS is a leading global investor and energy storage owner-operator, moving with speed to deliver market-leading projects across multiple countries.

BW ESS currently has more than 500MWh of operating BESS projects, with over 1GWh under construction and a development pipeline of about 7GW.

In 2024, BW ESS strengthened its market presence through strategic acquisitions and partnerships, including the acquisition of the remaining shares in Penso Power, where it had been an investor since 2021. This enhanced its engineering, project delivery, and commercial capabilities and the business also expanded further into Australia.

As part of its European expansion, BW ESS partnered with ACL Energy in Italy and secured a seven-year tolling agreement with Shell for the 100MW/331MWh Bramley BESS project in the UK. In the Nordics, BW ESS and Ingrid Capacity inaugurated the region's largest unified battery storage portfolio, energising 14 large-scale facilities with a total capacity of 211MW/211MWh in Sweden.

BW ESS develops, builds, owns and operates its projects, taking a hands-on approach to unlock value throughout the energy storage asset lifecycle. Part of BW Group, BW ESS leverages a global industry network, as well as decades of experience in energy infrastructure investment, delivery, and operation.



BW Ideol



Headquartered in France, BW Ideol is a leading provider and co-developer of floating foundations for floating offshore wind, enabling access to deeper waters with more space and stronger winds.

With over 15 years of experience in the design, development, and execution of floating wind projects, BW Ideol leverages its patented Damping Pool® technology and engineering expertise.

In February 2021, BW Offshore became a strategic shareholder in Ideol S.A., creating BW Ideol — a renewable energy company with marketleading capabilities, built on proprietary, proven and patented technology, developed in-house. BW Ideol benefits from BW Offshore's extensive experience in the development and operation of offshore energy production systems.

The company has a dual-growth strategy, serving as both a supplier of floating foundations, and a codeveloper and co-owner of floating wind farms.

BW Ideol currently operates two full-scale offshore floating wind turbines in France and Japan. Additionally, a 30 MW pilot project is under construction in southern France that will be commissioned in 2025. BW Ideol designed the floating foundations, which were completed in 2024.

BW Ideol also holds a strong project pipeline, including 1 GW of projects under development in Scotland.

BW Solar



Headquartered in Canada, BW Solar focuses on the development of solar power generation and energy storage projects.

Founded in 2020 and fully owned by BW Group, BW Solar has successfully originated and developed several gigawatts (GW) of solar and energy storage assets across North America, divesting 2.3GW in the United States and Canada.

BW Solar is a nimble developer with a primary focus on the development of community solar projects, and providing equitable access to clean, affordable energy. While expanding its community solar portfolio, the company continuously explores opportunities to create value for BW Group and its shareholders while advancing the global energy transition.

BW Solar collaborates with stakeholders, including community leaders and residents, to minimise environmental impact and ensure compliance with local policies. Positioned in one of the fastest-growing renewable energy markets, the company drives positive change for both the environment and local communities.

Focused on delivering the lowest Levelised Cost of Energy (LCOE) while managing development risk, BW Solar is involved in every stage of the project lifecycle, from origination to commercialisation, ensuring every project brings long-term value and benefits.

As a vertically integrated developer, BW Solar oversees siting, permitting, development, engineering, and financing, maintaining full control and efficiency. Through its dedication to community solar, BW Solar drives the energy transition while creating lasting value for shareholders and stakeholders.

BW Sustainability Report 2024





BW Water

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BW Water is a leading global provider of full-service water and wastewater solutions for both industrial and municipal needs.



Headquartered in Denmark, Cadeler is a leading global partner in offshore wind turbine and foundation transportation, installation, operations, and maintenance.

With a proven track record, BW Water offers comprehensive solutions for new build construction to turnkey system upgrades, operations and maintenance.

With a 35-year track record in desalination and integrated system solutions with membrane treatment technologies, the company is responsible for developing over 200 municipal and industrial installations worldwide. BW Water's proprietary technologies, Hydro-PAQ[™] and Hydro-FIL[™], provide energy-efficient, large-volume treatment solutions.

Since its inception in 2019, BW Water has grown from a start-up with two employees to a global company with over 300 employees. Expanding from its regional presence in Southeast Asia, the company made significant acquisitions in the US and Europe in 2023, enhancing its capabilities in large-scale desalination for potable water production and cuttingedge fabrication and production facilities.

BW has been a significant investor in BW Water since 2021.

Cadeler owns and operates the industry's largest and most modern fleet of jack-up offshore wind installation vessels. Cadeler is a pure play company, operating solely in the offshore wind industry with an uncompromising focus on safety and the environment.

Cadeler's fleet, expertise, and capacity to handle the most complex next-generation offshore wind installation projects position the company to deliver innovative and high-performance services to the industry. Cadeler currently has seven installation vessels in operation, with four newbuilds scheduled for delivery between H2 2025 and H1 2027.

Cadeler is committed to being at the forefront of sustainable wind farm installation and to enable the global energy transition towards a future built on renewable energy. Cadeler is listed on the New York Stock Exchange (ticker: CDLR) and the Oslo Stock Exchange (ticker: CADLR).



Corvus Energy

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Headquartered in Norway, Corvus Energy is the world's leading supplier of zeroemission solutions for the ocean space.

Founded in 2009, Corvus Energy is the leading supplier of zero-emission solutions for maritime, offshore and port applications.

Shipowners across all segments are focused on finding ways to meet IMO ambitions to reduce Greenhouse Gas (GHG) emissions from shipping by 70% in 2050. Corvus Energy is committed to developing the safest, most reliable, and cost-effective solutions to help eliminate fossil fuel use.

Corvus Energy offers a full portfolio of energy storage and fuel cell systems, suitable for almost every vessel type, providing power systems in the form of modular lithium-ion battery systems and Hydrogen PEM fuel cell systems. To date, Corvus Energy has unsurpassed experience from more than 1300 projects. More than 50% of the world's vessels with zero-emission technology are equipped with Corvus Energy systems.

BW Digital



Headquartered in Singapore, BW Digital develops, builds and operates digital infrastructure in the Asia-Pacific region.

BW Digital's vision is to create a sustainable digital ecosystem combining connectivity, data storage and value-added services for cloud and AI workloads.

BW Digital is the owner and operator of Hawaiki, a 15,000 km submarine cable system connecting Australia, New Zealand, American Samoa, Hawaii and the US west coast since 2018. A new branch will connect Tonga late 2025.

BW Digital is in the process of expanding its asset base with the development of multiple infrastructure projects. This includes the BW Digital campus at Batam's Nongsa Digital Park in Indonesia. The campus will include a 120MW AI-ready data centre (NDP1), a new subsea cable between Singapore and Batam (NCC) and a local terrestrial fibre network (CitraConnect).



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Zero Harm

We believe in zero harm to people, the environment, cargo and property.



Safety is at the top of our agenda

BW is committed to a safe working environment. We do this through a culture of constant communication, active sharing of best practices, learning from nearmiss incidents and numerous other safety tools and processes.

We aim to ensure that every employee, both onshore and at sea, can work in the safest work environment possible. An example is our Health, Safety and Environment Policy, a directive that embodies our work activities. Tools like this create BW's Zero Harm safety culture.

BW has a holistic approach to Health, Safety, Security, Environment, and Quality (HSSEQ) across our operations. Our safety vision of Zero Harm is a journey and new initiatives are put in place each year to realise our ambition.

Safer Together campaign

Since 2023, our Safety Together campaign has set the course for how we work towards our safety vision of

Zero Harm. Safer Together highlights a different topic every quarter, leveraging well-known safety activities for reflective learning and deeper engagement. In 2024, the four topics covered were about dealing with risk, caring for people, following correct procedures and gaining new knowledge.

To track our progress, we employ the use of SafeMind, a Safety and Organisational Maturity survey. This tool has documented significant improvements in our safety culture, with an improved score of 85% in 2024, as compared to 73% in 2019. This is well above the shipping industry average of 50%.

Since our Zero Harm programme was introduced in 2013, our overall safety statistics indicate these efforts have been effective and impactful. On the privately held side of the Group, BW LNG's Lost Time Injury Frequency Rate (LTIFR) was 0.27 (2023: 0.42), with two Lost Time Injuries. Although our incident statistics show a positive downward trend in many group companies, there is always work to be done

Emergency preparedness

Even as we focus on prevention, we remain committed to emergency response preparedness. In collaboration with external stakeholders such as our Qualified Individuals (QI), P&I Clubs and a crisis communications agency, we conduct regular drills to stress-test our processes, train crew and colleagues, and refine our response as a team. In 2024, we conducted several drills with scenarios of loss of propulsion / steering, grounding, collision, pollution, explosion / fire, refugee rescue, search and rescue, heavy media attention, serious personal injury, hijacking / piracy, and business continuity.

Stop Work policy

BW Offshore gives all employees the explicit authority to stop any actions they think are unsafe and / or they are unsure about, and to initiate a process to define and clarify their concerns without any repercussions or questions. The Stop Work policy is endorsed by the CEO and conveys the expectation that everyone has the right to stop work without consequence. A safety observation



card system is used at all work locations, offshore and onshore, where observations can be made anonymously. A Speak Up channel is also available for all internal and external stakeholders, for concerns to be raised anonymously.

Safety culture

Through their We LEAD Culture Programme, BW Offshore fosters a strong culture aligned with their corporate values, and the company records all incidents to apply a 'learning from failures' approach to continuous improvement at all levels.

In October 2024, BW Offshore celebrated its third annual We LEAD Day during which the company honoured achievements, hosted engagement sessions globally, and held an award ceremony in Singapore for quarterly award winners. The theme for 2024 was Speak Up, reinforcing BW Offshore's commitment to a safe and supportive workplace, and psychological safety through open communication, learning from failure, and continuous improvement.

Workforce Diversity and Inclusion

We believe our global businesses should reflect the world we serve.



Diversity and inclusion is part of BW's culture

BW is committed to diversity and inclusion. We support the development of our employees, and we are proud that so many of our people choose to remain at BW for a long time.

Different nationalities

The collective sum of individual differences, life experiences, knowledge, capabilities, and talent constitute our culture. BW embraces differences in age, ethnicity, family and relationships, and all other characteristics that make our employees unique.

Gender diversity

According to the IMO, women represent just 2% of approximately two million seafarers globally, and 94% of these women have chosen to work in the cruise industry. For onshore positions, the balance is better, and most of our offices comprise an average of over 30% female employees.





BW GROUP IS PROUD TO BE ONE OF ASIA PACIFIC'S BEST EMPLOYERS 2025 AND FORBES WORLD'S BEST EMPLOYERS 2023



We are focused on creating a work environment where people feel inspired, valued, and fulfilled.

We are proud of our collaborative culture and the strong connections colleagues have with each other. In 2024, BW was named one of Financial Times Best Employers Asia-Pacific 2025 in collaboration with Statista. In 2023, BW was also recognised as one of Forbes World's Best Employers. In the Group's 2024 annual People Survey, 96% of employees recommended BW as a good place to work, with 98% believing in our Vision, Mission, and Values. This was closely followed by 95% of employees who felt that they were treated with respect at work, and 93% resonating with the sense of personal accomplishment from their work.

BW's Our Whole Self Programme is designed to inspire a deeper awareness on diversity, inclusion

and belonging (DI&B) and well-being. Our teams are encouraged to embrace learning events, listen to panel discussions, take part in team activities and benefit from self-reflection exercises.

Aligned with the World Health Organisation's Mental Health Awareness Month in October, BW has designated October as our well-being month. In 2024, BW hosted two keynote sessions as part of the lineup of holistic wellness activities. The first was with Dr. Sophie Bostock on the importance of sleep for peak performance. The second was with Sally Duxfield on enhancing well-being.

We are proud of our internationally diverse culture and continually enhance our workplace environment to ensure our employees find meaning, purpose and





enjoyment in their roles. The different background and experiences that our employees bring drives our innovation and creates an energising workplace.

We recognise inclusion at sea is just as important as onshore. To foster a conducive work environment for all, particularly under-represented groups such as females, we are launching the Respect and Belonging at Sea programme for all BW LNG and BW LPG sea staff and operational shore-based staff in early 2025. The three-year programme will provide Diversity, Inclusion, and Belonging (DIB) training to all our seafarers, making BW LNG and BW LPG among the first in the industry to offer such training across the entire fleet. To measure progress and impact, fleetwide surveys were conducted in 2024 to establish a baseline on respect and belonging metrics and sentiment. To show greater support for diversity and inclusion in the maritime sector, Hafnia is advancing a comprehensive DIBE (Diversity, Inclusion, Belonging, and Equity) agenda anchored in Hafnia's corporate strategy. Hafnia additionally announced its Hafnia Maritime Culture Lab in 2023. Since its inception, the initiative has seen six vessels crewed with at least 50% women, and continues to drive industry-wide learning through

research partnerships. Almost 11% of Hafnia's seafarers are now women (well above the global industry average) and reflect 47 different nationalities. In recognition of these efforts, Hafnia was honoured with the Danish Shipping Diversity Award in 2024 for the second time.

Local Recruitment and Training

We are committed to developing our employees and empowering them to thrive, through training that fosters inclusive leadership and a strong sense of belonging.

In 2024, BW Group deepened its commitment to developing a strong, values-driven leadership culture through a series of impactful training initiatives across the organisation. In the first half of the year, 90 colleagues in Manila participated in a Culture Matters workshop, designed to strengthen understanding and connection to BW's Vision, Mission, and Values (VMV). BW Group concluded the inaugural edition of Explorer, our people leadership development programme, for 95 people managers across multiple affiliates worldwide. In addition, BW held a two-day Value Negotiation Training in Singapore and Oslo, where over 100 colleagues honed their negotiation skills.

For the second half of 2024, BW organised monthly refresher sessions for Explorer people managers to reinforce their learnings and support their ongoing application of key concepts. In October 2024, we launched the second run of Explorer, for a cohort of 75 people managers across Singapore, Houston, and Oslo. To wrap up the year, BW Group hosted Performance Coaching webinars to empower both managers and employees with the skills needed for positive performance coaching conversations.

Regardless of the country BW works in, training and integration is key to a sustainable pool of local seafarers. Having gathered significant experience over the years, we now have an extensive recruitment and training process for seafarers.

Familiarising seafarers with BW and our shipping culture is also a priority. For example, in Nigeria, we set up the BW Crew Integration Programme to bridge cultural differences and support the professional development of our Nigerian crew pool. A proud milestone of this effort is the promotion of our first Nigerian Master, who began his journey with BW as a deck cadet and steadily advanced through the ranks.









Cadets sail as BW Officers today

BW Cadet Programme

Beyond providing job opportunities for locals in the areas where we do business, BW has set up the BW Group Cadet Programme to develop our own in-house talent around the world. Having this talent pool ensures a steady supply of officers to all our managed vessels. Aligned with our commitment to develop local maritime experience, in certain countries, our Cadets selected from ratings and maritime academies are fully sponsored by BW to pursue their maritime university studies. Over the years, BW has developed 2,093 cadets from the Philippines, India, China, Nigeria, Russia, Romania and other countries. 712 of them currently sail as BW Officers today.

BW Wellness Programme

The BW Wellness Programme is designed to promote the mental and physical wellbeing of seafarers, while fostering a sense of togetherness onboard.

BW's employees are central to our mission and vision to be Best on Water. We recognise a healthy and diverse work environment, onshore and at sea, is important for fostering a culture of innovation, high performance, and safety.

The BW Wellness Programme is designed to bring about a cultural shift throughout the organisation, providing ongoing support for the holistic well-being of our seafarers.

The BW Wellness Programme offers a variety of activities that can be chosen based on individual preferences and schedules. A unique aspect of the Programme are the Inter-vessel Challenges, which allow seafarers from different vessels within BW to participate in friendly competitions. These challenges foster camaraderie and collaboration among seafarers.

The Programme also encourages them to create their own challenges, with monthly recognition for top performing vessels. As a reward for active participation, monthly rewards are provided as incentives.

The BW Wellness Programme uses internet and mobile-enabled platforms to provide a personalised experience, based on individual health data, including meal plans, exercise reminders, and mindfulness exercises. Crew members can easily access areas of interest, including fitness, nutrition, wellness, and education.

In 2024, BW significantly increased seafarers' participation rates across all fleets, with 71% involved in at least one social activity per month. This success was fuelled by the dedication of Wellness Ambassadors aboard ships, who actively engaged seafarers in social interactions.





Community Support

Driven by our values to make a positive impact, BW believes in uplifting the communities we operate in.



Philippines

BW Shipping Philippines and BW Maritime ROHQ partnered with the Philippine Red Cross for a meaningful blood donation drive. 38 employees participated in the screening and generously donated about 17 litres of lifesaving blood. With each blood donation saving up to three lives, our team was able to help support 114 lives in need.



Singapore

BW Epic Kosan collaborated with Ocean Purpose Project Singapore for a clean-up exercise at Pasir Ris Beach. Volunteers spent half a day collecting, sorting and recycling waste from the mangroves, and helped maintain the community garden by mixing collected seaweed with compost to enrich the soil for growing edible plants. BW Group supported Daughters of Tomorrow with their Greenhouse Programme, helping women from lower-income backgrounds transition back into the workforce by sponsoring laptops and providing lunch for their Graduation Day.

BW also supports talent development programmes and maritime scholarships through the Maritime and Port Authority of Singapore, including the MaritimeONE Scholarship, administered by the Singapore Maritime Foundation (SMF). At the inaugural SMF City Cycle 2024, BW Group, BW LNG, BW LPG, BW Epic Kosan, and Hafnia collectively contributed S\$105,000 towards MaritimeONE scholarships and bursaries.





India

BW LPG, through its affiliate BW LPG India, expanded the number of scholarships offered to female cadets enrolled at the Indian Maritime University. Growing from nine scholars to over 80 female scholars to date since 2020, this is India's first and only fully-sponsored maritime scholarship for female cadets.

The scholarship provides financial assistance, with guaranteed apprenticeship onboard vessels, followed by placement on ships with Synergy Ship Management. In 2024, four female cadets continued their career journey on board our vessels — Ms. Devija on BW Tyr, Ms. Anushka and Ms. Megha on BW Pine, and Ms. Theresa on BW Loyalty.

Additionally, BW LPG India has partnered with Akshaya Patra Foundation, an Indian non-profit organisation, to sponsor the energy needs of 13 kitchens. Over the past two years, these kitchens have collectively cooked 43 million meals for children studying at 2,700 government and government-aided schools, contributing significantly to addressing food insecurity and improving attendance in schools.

BW LPG India has also signed an agreement to replace briquette-powered equipment with cleanburning LPG-fuelled equipment in a kitchen in Puri, Odisha. The pilot project, the first of its kind for the Akshaya Patra Foundation, will provide nutritious midday meals for up to 38,000 children daily.



Brazil

BW LNG is committed to environmental stewardship in the waters it operates in. BW Magna, moored in Port Açu, Rio de Janeiro, is one of our two BW FSRUs painted in dark blue, as the darker hue enables young turtles to navigate better by minimising artificial light reflection into the sea.

As part of the BW Magna's seawater management process, water utilised in LNG regasification is subsequently reused in the power plant's cooling towers, reducing the project's dependence on freshwater sources. Cooler water from the LNG regasification process enhances the efficiency of the thermal cycle in the power unit. This practice significantly reduces the delta in discharge temperatures protecting marine ecosystem by maintaining seawater temperature and mitigating thermal pollution in the region. Strategic reliance on seawater also lessens freshwater consumption.

The BW Magna crew also actively participates in beach cleaning activities on World Ocean Day organised by our Charterer Gás Natural Açu, collecting waste from the Port of Açu where BW Magna is stationed.

Around the world

BW provided financial assistance to the Mission to Seafarers, which supports merchant crew through advocacy and counselling services worldwide.



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BW Group Supervisory Board

Corporate Governance

BW's success is founded on strong ethical standards. We have a well-developed corporate governance structure that adheres to the Corporate Governance Code of Practice.



Human rights

BW Group is committed to meeting its responsibility to respect human rights and decent working conditions and to upholding human rights throughout all its business operations, regardless of the countries in which they are conducted. Furthermore, consistent with its governing principles, BW Group anticipates full compliance with these standards from all entities and partners within its supply chain.

BW Group supports internationally recognised human rights standards, including those set out in the International Bill of Human Rights and the International Labour Organisation Declaration on Fundamental Principles and Rights at Work.

BW Group firmly opposes human slavery, human trafficking, forced labour, child labour and torture. BW Group also embraces a Zero-Harm safety vision, through which it strives to create the safest work environment possible for every employee, both onshore and at sea.



Mr Andreas Sohmen-Pao

Chairman of BW Group, BW Offshore, BW LPG, Hafnia, BW Energy, Cadeler and Global Centre for Maritime Decarbonisation. He is a trustee of the Lloyd's Register Foundation. Previously Chairman of the Singapore Maritime Foundation, former director of HSBC (HK), MPA, London P&I amongst others.

Sir John Rose

Service Star.





Chairman of BlackRock Europe, Sampo. Former Group CEO Nordea, President of the European Banking Federation, director of OMX, Stockholm and Copenhagen Exchanges.



Ms Ouma Sananikone

Director of DMC Global, Gecina, IA Financial Group, Innergex. Former CEO of Aberdeen Asset Management (Australia), EquitiLink Group, and Founding Managing Director of BNP Investment Management (Australia).



Senior adviser of Rothschild, Chair of Salica Environmental Technologies, Executive Chair of Aquavest Technologies, Member of Nuclear Scaling Initiative Global Advisory Board. Former CEO of Rolls Royce, Deputy Chairman of Rothschild Group. Commandeur de la Légion d'honneur and Singapore Public



Mr Thomas Thune Andersen

Chairman of Lloyd's Register Group, Lloyd's Register Foundation, board member of IMI, Cadeler, and Lambert Energy Advisory. Former Chairman of Ørsted, VKR Holding, DeepOcean; CEO Maersk Oil, director of Green Hydrogen Systems, Petrofac, Scottish and Southern.



Mr Sanjiv Misra

Chairman of Clifford Capital Holdings and Bayfront Infrastructure Management Pte Ltd, Asia Pacific Advisory Board for Apollo Global Management. Non-Executive Director of BW LPG and Partners Capital Group, and President of Phoenix Advisers Pte Ltd.

In 2024, BW Group and its affiliates were a member of or partner with the following associations and organisations:

All Aboard Alliance	Baltic & International Maritime Council	Climate Change Mitigation in the Maritime Sector
Coalition for Community Solar Access	Diversity Study Group DIVERSITY STUDY GROUP Maritime DEI Experts	Getting to Zero Coalition
Global Centre for Maritime Decarbonisation	Global Maritime Forum	IMPAACT impaact Responsible Business Conduct in the Global Maritime Industry
Maritime and Port Authority of Singapore	Maritime Anti-Corruption Network	North American Energy Markets Association
Norwegian Business Association Singapore	Norwegian University of Science and Technology	Singapore Maritime Foundation
Singapore Shipping Association	SINTEF Ocean	Society of International Gas Tanker and Terminal Operators
Solar Energy Industries Association	The Mission to Seafarers	World Liquid Gas Association

BW strives to actively contribute to maritime industry organisations and forums.

Industry Participation

Lending our voice to climate advocacy

The pressure for environmental action and regulation creates the need for even greater collaboration between industry players — not only among ship owners and operators but also charterers, banks, and governments. We are active participants in multiple associations working on industry matters, including climate change initiatives.



Key Industry Collaborations and Initiatives

Global Centre for Maritime Decarbonisation



The Global Centre for Maritime Decarbonisation (GCMD) was established as a non-profit organisation on 1 August 2021 with a mission to support the decarbonisation of the maritime industry by shaping standards, deploying solutions, financing projects, and fostering collaboration across sectors. GCMD is strategically located in Singapore, the world's largest bunkering hub and busiest transshipment port. Given the complexities of the maritime ecosystem and the urgency to decarbonise, collaboration across the value chain is key to realising IMO's 2030 and 2050 targets.

Founded by six industry partners namely BHP, BW Group, Eastern Pacific Shipping, Foundation Det Norske Veritas, Ocean Network Express and Seatrium, GCMD also receives funding from the Maritime and Port Authority of Singapore (MPA) for qualifying research and development programmes and projects. Since its founding, bp, Hanwha Ocean, Hapag-Lloyd and NYK Line have joined as Strategic partners.

Chaired by BW Group Chairman, Andreas Sohmen-Pao, the centre is focused on conducting pilots and trials to lower barriers for broad market adoption of low- / zerocarbon solutions by:

• Shaping standards:

Share the learnings from projects at relevant national and international technical committee meetings to assist and accelerate the drafting of guidelines and standards.

• Financing projects:

Co-fund projects, especially ones that lack immediate commercial viability or ones that may not lead to commercial returns, so learnings may lower the barriers for adoption.

Deploying solutions:

Rally partners and execute projects to demonstrate the viability of decarbonisation solutions.

Fostering collaboration:

Provide neutral ground for stakeholders across the value chain to convene, ensuring a diversity of inputs to scope and operationalise pilots.

GCMD recognises the need to bring stakeholders across the value chain together in a whole-ofsystems manner to look at multiple solutions for international shipping to achieve its near and longterm decarbonisation ambitions.

To prioritise, they scope their projects by:

· Enabling ammonia as a marine fuel:

GCMD completed a safety study on piloting ammonia bunkering in April 2023, paving the way for developing standards and training programs for safe ammonia transfer during breakbulk and bunkering operations. Building on this study, GCMD executed the first ammonia transfer at anchorage in the waters of Port Dampier, located in the Pilbara region of Western Australia.

• Developing an assurance framework for drop-in green fuels:

GCMD completed four supply chain trials with biofuel blends (B24 and B30), and a project trialling the continuous use of biofuels to study its impact on engine performance and onboard systems operations. Additionally, GCMD is exploring crude algae oil as a promising third-generation biofuel option.

• Unlocking the carbon value chain:

GCMD completed a techno-economic analysis of an onboard carbon capture system (OCCS) for an MR tanker. GCMD also published a study on the safe offloading of CO_2 captured onboard vessels, and a report examining shipping's role in facilitating carbon capture, utilisation and storage (CCUS) in Asia Pacific. A study has also been initiated to evaluate the life cycle of GHG emissions from onboard capture, offloading, utilisation, and/ or sequestration pathways.

Scaling adoption of energy efficiency technologies (EETs):

To address commercial barriers hindering the adoption of EETs, where performance variability makes it difficult to quantify their true impact, GCMD has launched Pay-As-You-Save (PAYS) pilots. These pilots aim to de-risk financing for energy efficiency retrofits by managing security risks associated with third-party investments, and to verify fuel savings and attribute them to specific technologies.

For more information, visit https://www.gcformd.org 7

All Aboard Alliance



Getting to Zero Coalition



Maritime Anti-Corruption Network



The All Aboard Alliance was founded in 2022 via a collaborative drive from top industry leaders, towards increasing diversity, equity, and inclusion across the maritime sector. The Diversity Study Group is one of the Founding Knowledge Partners.

In 2024, the All Aboard Alliance launched the '15 Key Pain Points for Women at Sea' report. The findings aim to help raise awareness of the challenges women face at sea, but more importantly, form an important part of the planned work within the alliance, enabling member companies to find new measures and solutions to address each of the 15 key points as part of the Diversity@Sea workstream.

Several BW affiliates have joined the Getting to Zero Coalition, an alliance of more than 200 companies within the maritime, energy, infrastructure, and finance industry, including key governments and Inter-Governmental Organisations support.

The Coalition is committed to getting commercially viable zero-emission deep-sea vessels into operation by 2030.

BW is a member of the Maritime Anti-Corruption Network (MACN), a global business network working towards the vision of a maritime industry free of corruption. Alongside BW Epic Kosan, BW LPG, Hafnia and Navigator Gas, BW Group actively supports MACN's efforts to promote good corporate practices in the maritime industry for tackling bribes, facilitation payments and other forms of corruption.

BW continues to uphold high ethical standards, following strict anti-bribery policies. In September 2023, Dorte Thuesen Christensen, Vice President of Operations and Claims at Hafnia, was elected to the MACN Board of Directors.



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Environmental Metrics

Safety and Diversity Metrics

Business Activity	BW LNG	BW Dry Cargo
Owned fleet size (no. of vessels)		
2022	28	10
2023	26	9
2024	28	8.7
Total Deadweight Tonnage (DWT)		
2022	2,459,746	858,126
2023	2,284,575	776,343
2024	2,461,923	777,185
Total distance sailed (nautical mile	s)	
2022	2,242,737	557,494
2023	2,374,425	557,550
2024	2,382,994	543,092
Total cargo carried (metric tonnes))	
2022	13,873,162	4,023,735
2023	12,267,663	3,238,831
2024	13,303,103	3,564,459
Transport work (million tonnes-nat	utical miles, mt-nm)
2022	69,665	25,575

2024	81,181	26,957
2023	72,200	25,573
2022	69,665	25,575

Total CO ₂ emissions (me	etric tonnes)
2022	1760.20

2022	1,769,321	169,358
2023	1,710,387	156,563
2024	1,737,450	155,135

BW LNG

BW Dry Cargo

Total NOx emissions (metric tonnes)

Emissions

2022	6,985	4,286
2023	12,594	3,957
2024	12,084	4,078

Total SOx emissions (metric tonnes)

2022	670	507
2023	620	464
2024	489	456

Efficiency Metrics	BW LNG	BW Dry Cargo

EEOI (g CO₂ / t-nm)

2022	20.91	6.62
2023	20.64	6.12
2024	21.66	5.75

AER (g CO₂ / DWT-nm)

2022	8.37	3.45
2023	7.47	3.21
2024	7.71	3.29

Rey barety blatistics	DW LIVG	DwbryCargo	
Lost Time Incident Rate (I	.TIR)		
2022	0.14	1.23	
2023	0.42	0.63	
0004	0.07	0.04	

2022	0.43	1.23
2023	0.69	1.90
2024	0.27	2.02

Gender Diversity	BW LNG	BW Dry Cargo

Key Safety Statistics	BW LNG	BW Dry Cargo	Demographic Diversity	BW LNG	BW Dry Cargo
Lost Time Incident Rate (LTIR)			Total employees		
2022	0.14	1.23	2022	1.655	_
2023	0.42	0.63	2023	1,655	_
2024	0.27	0.34	2024	1,654	-
Total Recordable Case Frequer	ncy (TRCF)		Nationalities represented		
2022	0.43	1.23	2022	29	-
2023	0.69	1.90	2023	29	-
2024	0.27	2.02	2024	31	-
			Age (<30) as percentage of work	force	
			2022	22%	-
Gender Diversity	BW LNG	BW Dry Cargo	2023	23%	-
			2024	21%	-
Onshore gender split (Female -	- Male %)		Age (30–50) as percentage of wo	orkforce	
2022	21 - 79	-	2022	66%	-
2023	23 - 77	-	2023	64%	-
2024	26 - 74	-	2024	65%	-
Senior management gender sp	olit (Female – Male	%)	Age (>50) as percentage of work	force	
2022	20 - 80	-	2022	12%	-
2023	20 - 80	-	2023	13%	-
2024	20 - 80	-	2024	14%	-

2022	20 - 80	-
2023	20 - 80	-
2024	20 - 80	-

Board gender split (Female - Male %)

2022	20 - 80	-
2023	17 – 83	-
2024	20 - 80	-

Endnotes and Glossary

Annual Efficiency Ratio (AER) [g CO₂ / DWT-nm]

AER is a carbon intensity metric calculated in accordance with Poseidon Principles. Instead of calculating carbon intensity based on the actual cargo carried, AER assumes the vessel is continuously carrying cargo and utilises the vessel's designed deadweight capacity in the calculations. The AER of a fleet is calculated as the average of vessel level AER values.

Ballast Water Treatment Systems

Ballast Water Treatment Systems remove inactive biological organisms from ballast water. For a treatment system to be approved, it must discharge (a) less than 10 viable organisms per cubic metre that are greater than or equal to 50 micrometres in minimum dimension and (b) less than 10 viable organisms per millilitre that are less than 50 micrometres in minimum dimension and greater than or equal to 10 micrometres in minimum dimension.

BW LNG owned fleet size

The significant increase in the number of vessels from 2020 to 2024 is due to the inclusion of the FSRUs, which were not previously incorporated due to inconsistencies in reporting methodologies.

CO₂ emissions [metric tonnes (T) CO,-E]

Calculations are based on the IMO emission factors and fuel consumption for the year. The financial control approach defined by the GHG Protocol has been applied (Scope 1). This includes company owned vessels only.

Deadweight Tonnage (DWT)

Deadweight Tonnage specifies a vessel's maximum permissible deadweight, as a sum of the weights of cargo, fuel, freshwater, ballast water, provisions, and crew.

De-rated main engines

De-rating main engines optimises vessels' actual load point with their design load point, resulting in higher efficiency and reduced specific fuel oil consumption (SFOC). Measures to achieve de-rating often involve lowering the vessel's maximum speed (or its specified maximum continuous rating, MCR), such as by deactivating cylinders, removing turbochargers, reducing stroke length, or introducing various tuning settings to the engine.

Energy Efficiency Operational Index (EEOI) [g CO₂ / t-nm]

EEOI is the amount of CO_2 emitted by the ship per tonnemile of work, the latter of which is given by the equation: amount of cargo x nautical miles sailed. The EEOI of a fleet is calculated as the average of vessel-level EEOI values.

Emission Control Areas (ECAs) and Sulphur Emission Control Areas (SECAs)

ECAs and SECAs are sea areas in which stricter controls have been established to minimise airborne emissions from ships. They are defined by Annex VI of the 1997 MARPOL Protocol and include the following areas: the Baltic Sea area; the North Sea area; the North American area (covering designated coastal areas off the United States and Canada); and the United States Caribbean Sea area (around Puerto Rico and the United States Virgin Islands).

Engineering, Procurement, Construction and Installation (EPCI)

EPCI refers to a contracting arrangement within offshore construction where contractors design the structure, procure materials, undertake construction, and install the project at the offshore site.

Fixed online PMI system

A PMI system is a system to provide ship and power plant personnel with a portable computerised tool for cylinder pressure measurements. A fixed online PMI system is capable of optimising main engine fuel consumption.

Fleet renewal

Fleet renewal refers to the sale of old ships and ordering of newbuilds.

Grey water modification

Grey water refers to general cooking and cleaning waste (as opposed to black water which refers to sewage). Grey water modification is a system of managing grey water, such as reusing it for other purposes or purifying it.

Levelised Cost of Energy (LCOE)

LCOE provides a basis for comparison of technologies of unequal life spans, capital costs, and capacities. It is calculated as the average total cost of building and operating the asset per unit of total electricity generated over an assumed lifetime.

Lost Time Incident Rate (LTIR)

A lost time incident is an incident that results in absence from work beyond the date or shift when it occurred. The rate is based on: (lost time incidents) / (1,000,000 hours worked).

Maritime Energy Storage System (ESS)

Maritime ESSs store energy when demand is low and deliver it back when demand increases, often taking the form of a battery. Corvus Energy supplies ESS systems to more than 90% of large commercial hybrid vessels.

ME-GI Engines

ME-GI Engines are M-type, Electronically controlled, Gas Injection engines that use dual-fuel two-stroke propulsion instead of steam turbines. ME-GI Engines apply the principle of non-premixed combustion (Diesel principle) and operates on Heavy Fuel Oil (HFO) or Marine Diesel Oil (MDO) together with high-pressure natural gas, allowing fuel flexibility, high efficiency and lower emission levels. The main difference between ME-GI Engines and X-DF Engines is that the former uses high-pressure gas, while the latter uses low-pressure gas.

Owned fleet size

This reflects the fleet at December 31 of the given year and includes owned vessels of significant affiliates only.

Particulate Matter (PM), NOx, SOx emissions (metric tonnes)

NOx, SOx and PM emissions from the combustion of fuels from owned vessels have been calculated based on the tool established by Danish Shipping and distance travelled by vessels. Scope includes owned vessels only.

"Phase 3" Energy Efficiency Design Index (EEDI)

The EEDI is a design standard determined by the IMO. "Phase 3" refers to the EEDI requirement for new ships built after 2025 to have a design efficiency at least 30% below the reference line. The reference line is the average efficiency of ships built between 1999 and 2009, measured in terms of CO_2 emitted per unit of transport work.

P&I Clubs

P&I Clubs refer to Clubs that provide BW Group with marine liability cover. P&I stands for Protection and Indemnity insurance, which covers liabilities such as loss of life and personal injury to crew and others on board, cargo loss and damage, pollution by oil and other hazardous substances, wreck removal, collision and damage to property.

Reduction in total SOx emissions

SOx emissions between 2019 and 2020 decreased significantly relative to NOx and CO₂ emissions due to the shift from Heavy Fuel Oil (HFOs) to Very Low Sulphur Fuel Oil (VLSFO) as a fuel source in most vessels, in compliance with "IMO 2020", a new limit which was set on the sulphur content in the fuel oil used onboard ships.

Retrofitting

In the context of shipping, retrofitting refers to the process of adding new features or technologies to our vessels, such as new engines.

Total distance travelled by vessels (in nautical miles)

The distance travelled by all owned vessels during the calendar year.

Total employees

The total employees count includes full-time staff employed in the business unit within the year stated.

Total Recordable Case Frequency (TRCF)

This is the number of Total Recordable Cases (i.e. Lost Time Injuries + Restricted Work Injuries + Medical Treatment Cases) per 1,000,000 exposure hours.

Transport Work (t-nm)

Transport Work is first calculated at a vessel level as a product of each vessel's cargo carried and distance travelled over the year. Subsequently, transport work is calculated at a business unit-level as a sum of the vessel level transport work data.

Variation in AER based on vessel size

Vessels that are larger have greater opportunities for fuel efficiency, resulting in significantly lower AER and EEOI values. However, smaller vessels under 10,000 DWT are still important for plying near-coastal and inland waterways to transport energy, since these waterways cannot accommodate larger vessels.

X-DF propulsion

X-DF propulsion refers to dual-fuel two-stroke propulsion engines that apply the lean-burn principle (Otto cycle) in which fuel and air are premixed and burned at a high air-to fuel ratio. The gas enters into the combustion chamber via a low-pressure feed, whereas high-pressure gas engines (like the ME-GI engine) are based on the diesel combustion process in which high-pressure gas is injected into the combustion chamber. The benefits of using low-pressure gas include lower investment costs, low electrical power consumption, low maintenance costs, more flexibility in operation and lower NOx emissions.

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