YOUR PARTNER FOR DUAL-FUEL BULK CARRIERS

ADVANCING SUSTAINABILITY FOR COMMODITY TRADERS

BUREAU VERITAS

BUREAU VERITAS IS PARTNERING WITH COMMODITY TRADING COMPANIES, CHARTERERS AND SHIP OWNERS TO HELP CREATE MORE SUSTAINABLE SUPPLY CHAINS. THANKS TO OUR CLASSIFICATION EXPERTISE AND LONGSTANDING EXPERIENCE WITH ALTERNATIVE FUELS, WE ARE HELPING SHIP OWNERS DEVELOP DUAL-FUEL BULK CARRIERS TO SUPPORT LOW-CARBON SHIPPING AND TRADING.

INTEGRATING BULK CARRIERS

INTO THE GREEN SUPPLY CHAIN

78,000
BV employees worldwide

400,000
BV clients worldwide

11,500
Ships in BV-classed fleet

430+
BV surveyors trained for bulk carriers

1,200
In-service, BV-classed bulk carriers

36%
Tonnage in BV fleet from bulk carriers

The bulk carrier market

- *Iron ore accounts for ~30% of all traded dry bulk commodities and ~50% of major traded bulks*
- *The global fleet has 1,450+ Capesize bulk carriers[1]*
- *Australia and Brazil are the largest export markets for iron ore*

BV and alternative fuels

- *Present in all major LNG bunkering hubs*
- *Over 130 dual-fuel vessels[2] in the BV-classed fleet*
- *50 years' experience with LNG, biofuels and ammonia*

(1) Excluding very large iron ore carriers
(2) Vessels that are in service and on order, excluding gas carriers

TRANSFORMING TRANSPORTATION

FOR TRADERS, CHARTERERS AND SHIP OWNERS

Today's world is an increasingly globalized place, with international supply chains stretching from the far corners of Asia and the Pacific to the heart of North and South America. Trillions of tons of consumer goods, agriculture products and raw materials are traded annually, criss-crossing the planet.

However, while global trade provides crucial opportunities and support to businesses and individuals worldwide, it also depends on an extended supply chain. This creates a notable challenge for sustainability, where each step in a disparate, dispersed value chain contributes to the overall impact. For trading companies looking to minimize their environmental footprint, this means accounting for impacts throughout the supply chain, from sourcing and production to transportation and use.

As the primary source of transportation for over 80% of the world's traded goods, shipping represents a key area for sustainable development. Charterers have already reached this conclusion, with ever-greater numbers refusing to charter vessels without a roadmap for limiting their environmental footprint. Over twenty major charterers and commodity companies have signed onto the Sea Cargo Charter since 2020, which helps signatories align chartering activities with recognized sustainability targets.

This puts ship owners – the next link in the transportation supply chain – in the spotlight. To help commodity trading companies meet charterers' expectations for sustainability, ship owners must find new ways to limit their vessels' impact. This rings especially true for large bulk carrier owners, who must look beyond today's fossil fuels to the low-carbon solutions that will help decarbonize their operations.

As a marine classification society that is deeply committed to advancing the energy transition, Bureau Veritas works hand in hand with ship owners. We help enable bulk carrier owners to safely adopt alternative fuels like liquefied natural gas (LNG), and prepare for the zero-carbon solutions that will follow. By improving sustainability for ships, Bureau Veritas is pushing over the first domino, reaching back through the world's interconnected supply chains to reduce impact for charterers, traders and the planet.

"AS COMMODITY TRADERS' AND CHARTERERS' EXPECTATIONS CHANGE, LARGE BULK CARRIER OWNERS MUST LOOK TO THE LOW-CARBON FUEL SOLUTIONS THAT WILL HELP DECARBONIZE THEIR OPERATIONS."

Vasileios Gkikas
Global Market Leader Dry Cargo & Container Ships
Bureau Veritas Marine & Offshore

AN INTERNATIONAL GROUP SUPPORTING

GLOBAL COMMODITY TRADING

BUREAU VERITAS IS A LEADING CERTIFICATION BODY WITH OVER 190 YEARS' EXPERIENCE PROVIDING QUALITY, HEALTH AND SAFETY, AND ENVIRONMENTAL SERVICES. WE SUPPORT CLIENTS ACROSS INDUSTRIES IN MINIMIZING ENVIRONMENTAL IMPACT AND IMPROVING SUPPLY CHAIN SUSTAINABILITY.

SHAPING A WORLD OF TRUST

Bureau Veritas is a Business to Business to Society company, contributing to transforming the world we live in and building trust among companies, public authorities and consumers. A world leader in testing, inspection and certification (TIC), we help clients across industries address challenges in quality, health and safety, environmental protection and social responsibility.

Our mission is to serve society, enabling companies to overcome today's challenges – from climate change to urbanization and digitalization – while protecting employees and consumers. We leverage our longstanding experience, deep industry knowledge, unrivaled expertise and innovative technologies on behalf of our clients, helping them Shape a World of Trust.

EXPERTISE IN COMMODITIES, INDUSTRY AND FACILITIES

Bureau Veritas Commodities, Industry and Facilities (CIF) helps clients reduce risk, improve safety and performance, and preserve asset integrity for key industries. Our experts provide TIC services for the Metals & Minerals, Mining, Agri-Food and Oil & Petrochemicals sectors.

We take a two-pronged approach to sustainability. First, we help companies develop and implement strategies to minimize their environmental impact and reduce greenhouse gas (GHG) emissions. Second, we offer sustainable supply chain management services that enable clients to take a lifecycle approach to product sourcing, development and use.

FOCUSING ON AGRI-FOOD AND METALS & MINERALS

More than 65% of the dry bulk trade consists of iron ore, coal and grains – all three key products of the Agri-Food and Metals & Minerals industries. To ensure the safety and quality of these goods, Bureau Veritas CIF has developed close relationships with major industry players worldwide. We guide our clients toward greater sustainability and help them meet the expectations of charterers, governments, consumers and regulatory bodies.

Some key clients in Metals & Minerals

- *BHP*
- *Rio Tinto*
- *Anglo-American*
- *Vale*
- *Glencore*

Some key clients in Agri-Food

- *ADM*
- *Cargill*
- *Louis Dreyfus*
- *Viterra*
- *Cofco Trading*

A GLOBAL LEADER IN BULK CARRIER CLASSIFICATION

Bureau Veritas Marine & Offshore's mission is two-fold: assuring the safety of crew, assets and operations, while improving sustainability and minimizing environmental impact for our clients. Our engineers, surveyors, naval architects and structural specialists provide clients with unparalleled expertise, leveraging our connections and industry knowledge to ensure successful projects.

We have a long history of providing classification services for bulk carriers, and over 400 marine surveyors specifically trained to conduct bulk carrier inspections. Our experts provide marine classification to ship owners and lessors worldwide, helping them address safety, environmental, security and design challenges. We help ensure the safety, reliability and stability of large bulk carriers, providing services from the design phase through to operations and decommissioning.

We are also a leader in sustainability services, supporting bulk carrier owners in decarbonizing their ships through alternative fuels and propulsion. We offer in-depth knowledge of the technical, structural and safety challenges of LNG-powered vessels, and longstanding expertise in fitting newbuilds and retrofitting in-service vessels to use LNG.

30 million
DWT of BV-classed Capesize fleet

10%
BV market share in large bulk carriers

"The bulk carrier market is often evaluated on the basis of three products: coal, iron ore and grains. Following a resurgence in construction activities, and sustained growth in grain production and consumption[3], large bulk carriers are likely to be in high demand. This is especially true for major companies and charterers sailing along key trading routes. For iron ore, this means Australia and Brazil to Europe and Asia; for grains, North and South America and Europe to Asia, the Middle East and Africa."

Alex Gregg-Smith
Senior Vice President of North Asia
Bureau Veritas Marine & Offshore

(3) http://www.fao.org/worldfoodsituation/csdb/en/

TRANSITIONING TO A MORE SUSTAINABLE SUPPLY CHAIN

THE COMMODITIES INDUSTRY IS FACING PRESSURE FROM REGULATORY BODIES, CONSUMERS AND CHARTERERS TO IMPROVE SUPPLY CHAIN SUSTAINABILITY. FOR MANY SHIP OWNERS, THIS MEANS REASSESSING THE ENVIRONMENTAL FOOTPRINT OF THEIR VESSELS AND DETERMINING HOW TO REDUCE IT.

TRADING COMPANIES' NEW CHALLENGE: SUPPLY CHAIN SUSTAINABILITY

Charterers, governments, and regulatory bodies are increasingly putting pressure on commodity trading companies to manage their full supply chain sustainably. While this is crucial to moving the industry towards decarbonization and greater sustainability, it also presents a major logistical and technical challenge for commodity companies. Materials like coal and iron ore are sourced, exported, processed and refined, before being used in industrial applications – a process that involves numerous steps and stakeholders.

CHARTERERS' CHANGING EXPECTATIONS FOR GREEN TRANSPORTATION

A key sustainability focus within the commodities supply chain is the transportation of raw materials and goods by bulk carrier. Charterers are increasingly refusing to contract bulk carriers with large environmental footprints, preferring ships that use low-carbon alternative fuels to those running on heavy fuel oil. However, a limited number of bulk carriers currently use low-carbon fuels, leaving a gap in the market for commodity companies and charterers seeking cleaner transportation methods.

HOW BULK CARRIER OWNERS CAN IMPROVE SUSTAINABILITY

For ship owners, this presents an opportunity and incentive to shift toward alternative fuels. By powering their ships with low-carbon fuels, large bulk carrier owners can minimize GHG emissions and improve environmental performance. Today, LNG is a key transition fuel of choice for marine decarbonization, and many ship types – including container carriers, ro-ro vessels, tankers, cruise ships and dredgers – already have dual-fuel LNG engines onboard. Bulk carrier owners can use the knowledge accrued from these segments to retrofit or construct vessels with dual-fuel engines that meet charterers' sustainability expectations.

In line with IMO's ambitions to combat climate change, we are supporting bulk carrier owners in undertaking the necessary actions to meet decarbonization targets.

A CLASSIFICATION PARTNER COMMITTED TO SUSTAINABILITY

BUREAU VERITAS IS USING ITS COMMITMENT TO SUSTAINABILITY AND EXPERIENCE WITH ONBOARD LNG INTEGRATION TO HELP LARGE BULK CARRIER OWNERS MINIMIZE THEIR IMPACT. OUR FOUR PILLARS OF SUSTAINABILITY ENABLE US TO GUIDE SHIP OWNERS THROUGH THE SHIFT TO LOW-CARBON FUELS.

1 ENVIRONMENTAL PROTECTION

Protecting the marine environment and overall climate are key priorities for Bureau Veritas. We prioritize underwater and airborne pollution management and prevention, verifying the implementation of MARPOL regulations and supporting the onboard integration of pollution prevention systems. We help ship operators protect marine ecosystems and underwater life by ensuring compliance with IMO's Ballast Water Convention and providing services for underwater radiated noise (URN) reduction.

2 ENERGY TRANSITION & EFFICIENCY

Transitioning from fossil fuels to low- and zero-carbon fuels is crucial to the sustainable future of the shipping industry. Our experts work with ship owners, equipment providers and shipyards to develop safe, low-carbon fuels and energy solutions that will limit the shipping industry's environmental impact. Bureau Veritas also develops rules and standards for alternative propulsion technologies, helping drive the evolution of sails, batteries and other zero-carbon solutions.

OUR FOUR SUSTAINABILITY PILLARS

3 CARBON SERVICES

Limiting GHG emissions like carbon is the first step for many ship owners in minimizing their environmental impact. We help owners verify compliance with carbon indexes like the Energy Efficiency Existing Ship Index (EEXI), the Energy Efficiency Design Index (EEDI) and the Carbon Intensity Indicator (CII) with tools like our VeriSTAR Green application. Our experts also support compliance with green financing programs.

4 SOCIAL, ETHICS AND GOVERNANCE

An indispensable part of sustainability is accounting for the welfare of workers. Bureau Veritas offers auditing services for the Maritime Labour Convention, which assesses seafarers' working and living conditions. We also verify the correct implementation of onboard health, hygiene and safety protocols for vessels of all kinds, ensuring that biological risks have been minimized where possible.

ASSESSING
THE MARKET FOR LNG AS FUEL

SWITCHING TO DUAL-FUEL LNG POWER OFFERS SEVERAL ADVANTAGES, INCLUDING A BOOST IN SUSTAINABILITY AND REDUCED COSTS. HOWEVER, CERTAIN CHALLENGES REMAIN THAT CAN CAUSE BULK CARRIER OWNERS TO HESITATE WHEN CONSIDERING A SWITCH TO LNG AS FUEL.

THREE MARKET CHALLENGES OF LNG AS FUEL

1 COST

Building or retrofitting a bulk carrier to use LNG as fuel requires short-term CAPEX. Some owners are also concerned by the price of LNG, which, despite years of relatively low prices, is subject to price variation and market fluctuation.

2 BUNKERING

Bunkering can present an obstacle for bulk carrier operators that travel flexible trade routes. For vessels sailing over the course of several weeks or months, it is indispensable to know where and when a ship can bunker. The more restrictive trade patterns dictated by LNG bunkering facilities can be less favorable for bulk carriers.

3 SUSTAINABILITY

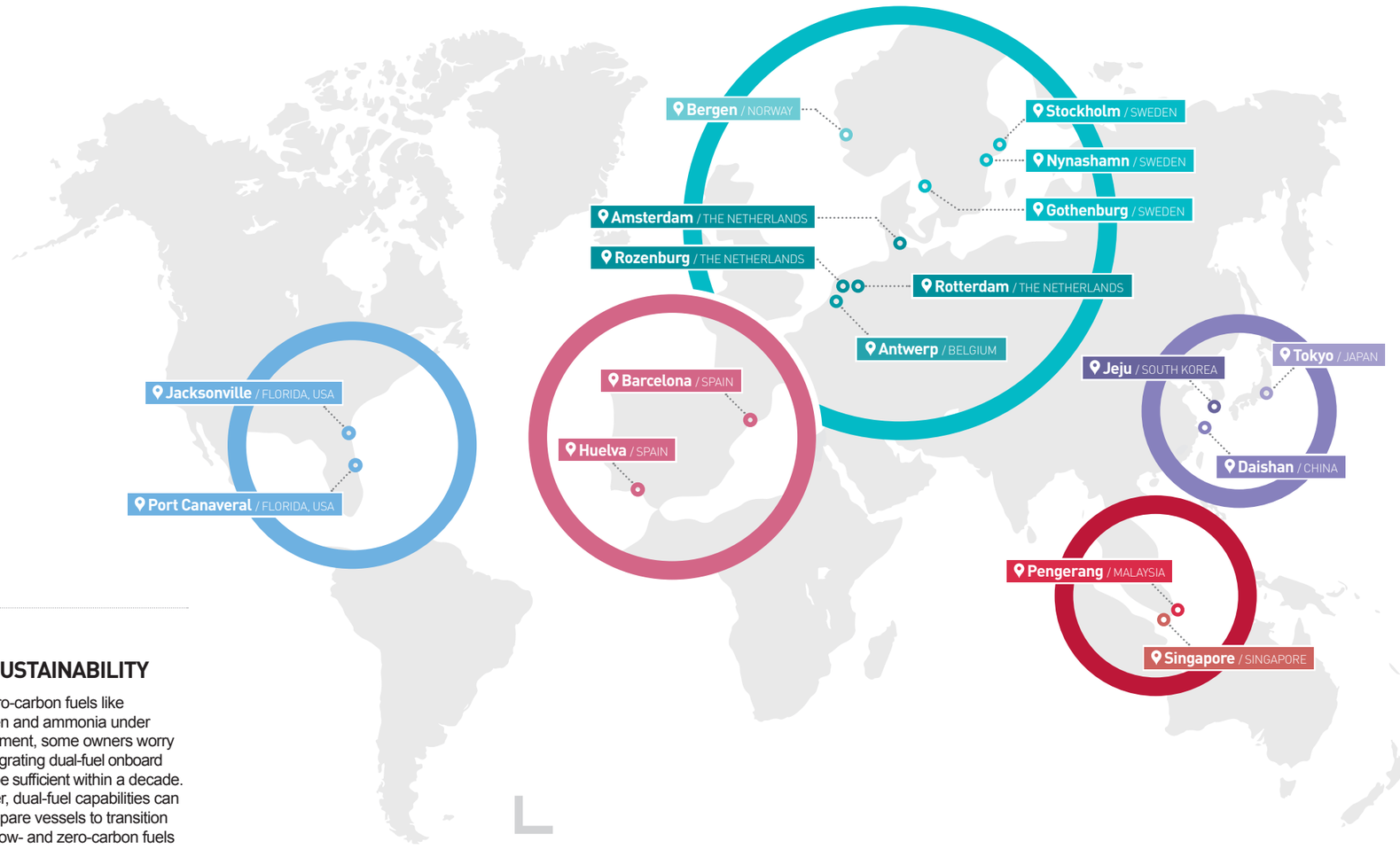
With zero-carbon fuels like hydrogen and ammonia under development, some owners worry that integrating dual-fuel onboard will not be sufficient within a decade. However, dual-fuel capabilities can help prepare vessels to transition toward low- and zero-carbon fuels in the long-term.

EXPLORING BIO-LNG AND SYNTHETIC LNG

In addition to preparing vessels for cleaner fuels like biofuels and ammonia, switching to dual-fuel enables bulk carrier owners to use alternative forms of LNG. One such option is bio-LNG. This is a more sustainable version of LNG that is produced by the anaerobic digestion of organic matter, a process similar to that used for biofuels. Bio-LNG can be delivered using existing LNG infrastructure, and can reduce ships' CO_2 emissions by more than 30%[4]. Synthetic LNG is another possibility, being derived from biomass or the process of electrolysis. This is a carbon-neutral solution when renewable electricity is used during production.

(4) https://www.spglobal.com/platts/en/market-insights/latest-news/natural-gas/112420-industry-groups-push-potential-of-bio-lng-as-transportation-fuel

SHIP-TO-SHIP LNG BUNKERING LOCATIONS



37%

OF LNG BUNKERING VESSELS ARE BV-CLASSED

"Alongside growing demand for LNG, we have seen a corresponding rise in the development of LNG terminals and bunkering vessels. Over 30 ports in Europe, Asia and North America are already equipped with LNG bunkering infrastructure, and ship-to-ship bunkering activities are increasing. At this rate, ships should have access to LNG bunkering facilities in virtually every major port worldwide by about 2030."

Carlos Guerrero
Global Market Leader for Tankers and Gas Carriers
Bureau Veritas Marine & Offshore

OVERCOMING
TECHNICAL AND OPERATIONAL CHALLENGES

IN DEVELOPING DUAL-FUEL, LARGE BULK CARRIERS, SHIP OWNERS NEED TO ADDRESS TECHNICAL AND OPERATIONAL CHALLENGES CRUCIAL TO VESSELS' SAFETY, OPTIMIZATION AND EFFICIENCY.

Tank and systems arrangement

Choosing the proper arrangement of LNG systems and tanks onboard is crucial to sailing safely and efficiently. Vessel owners must assess where LNG tanks can be installed vis-à-vis other areas of the ship, to ensure that the flammable substance is safely stored. While bulk carriers generally have simpler fuel gas supply systems than containerships, vessels must undergo a risk assessment before onboard installation.

Onboard safety

As a flammable substance stored at cryogenic temperatures, LNG must be carefully managed to avoid leaks and other accidents. Tank insulation, structural supports and sloshing effects must be rigorously assessed and managed, and owners need to mitigate the risk of mechanical damage (e.g., collision). Ships must integrate additional gas detection and fire protection systems onboard, as well as key ventilation and piping systems to manage gas flow.

Balancing boil-off gas

To travel efficiently, ship operators of LNG-powered vessels need to carefully manage boil-off gas (BOG), ensuring that the right amount of gas is being delivered to the engine, while maintaining the right conditions inside the tank. Temperature and pressure can vary within LNG tank(s) due to unexpected circumstances, such as extended time at sea, port congestion, etc. These factors must be assessed at an early stage, to help ship managers and operators successfully handle excess gas through alternative methods.

Fuel availability

Owners of large bulk carriers switching to dual-fuel can face the additional hurdle of needing to plot out a defined trade route with available bunkering facilities in advance. It is often in owners' interest to link their LNG transformation projects to long-term LNG bunkering agreements that include stops in specific places.

ENSURING FUEL QUALITY WITH VERIFUEL

Bulk carrier owners using alternative fuels like LNG must be sure that the quality of their fuel consistently meets statutory, technical and environmental requirements. Bureau Veritas' VeriFuel provides key testing services for bunkering surveys and fuel analyses, ensuring ships have the proper fuel quality and quantity onboard.

CLASSIFICATION EXPERTS RISING TO THE CHALLENGE

Bureau Veritas helps large bulk carrier owners minimize the impact of their LNG transition by limiting risk, improving safety, and ensuring compliance with all relevant regulations.

We offer the key expertise in LNG storage, transportation, handling and operations that vessel owners require to overcome technical and operational concerns.

We provide key guidance for:

- Assessing onboard space and choosing an optimal tank location
- Improving safety for onboard systems, including pipe specifications and routing, fuel gas supply systems, and gas detection and fire prevention instruments
- Storing LNG safely through the integration of vent masts, sloshing and anti-collision measures, cryogenic protection of tank supports and thermal insulation
- Managing BOG through a combination of technical expertise and insight into trading routes and conditions and their effects on long-term voyages
- Bunkering, through a comprehensive knowledge of bunkering routes and facilities, simultaneous operations (SIMOPS) and the de-risking of bunkering operations

Our offer spans the entire project lifecycle, from pre-project support, project management and help with design and construction to classification, in-service operations and surveys.

Our rules

- *NR467 – Rules for the classification of steel ships*
- *NR606 – Common structural rules for bulk carriers*
- *NI639 - Guidelines for the design of ships subject to bulk cargo liquefaction*
- *NR529 – Gas-fueled ships*
- *N1654 – Guidelines on conversion to LNG as fuel*
- *NR671 – Ammonia as fuel*
- *NR670 – Methyl/ethyl alcohol-fueled ships*
- *NR206 – Wind propulsion systems*

Our notations

- *Gas-Prepared*
- *Dual-Fuel/Gas-Fueled*
- *Methanol Fuel*
- *Ammonia-Prepared*
- *Ammonia Fuel*
- *Wind Propulsion System (WPS-1, WPS-2)*
- *Sustainable-Ship (1 and 2)*

"In the Hellenic, Black Sea and Adriatic Zone, the majority of ship owners with whom we interact have an international reach. Leveraging the smooth collaboration with North Asian shipyards, where most bulk carriers are built, we provide the expertise and end-to-end support to our clients to provide optimal outcomes and to quickly and effectively address any challenges they may face."

Paillette Palaiologou
VP Hellenic, Black Sea and Adriatic Zone
Bureau Veritas Marine & Offshore

OPTIMIZING
ENERGY EFFICIENCY AND PERFORMANCE

BUREAU VERITAS SOLUTIONS – MARINE & OFFSHORE OFFERS A COMPLETE PORTFOLIO OF SERVICES THAT HELP LARGE BULK CARRIERS IMPROVE SUSTAINABILITY. OUR EXPERTS PERFORM REVIEWS, AUDITS, EVALUATIONS AND ASSESSMENTS TO HELP OWNERS OPTIMIZE PERFORMANCE AND REDUCE ENVIRONMENTAL IMPACT.

PROJECT MANAGEMENT AND CONSULTANCY

We collaborate with stakeholders throughout the project lifecycle, from design and construction, to operations and maintenance, to retrofitting. We support clients' strategic decisions, ensuring an uninterrupted workflow and managing multiple services at once.

PRELIMINARY RISK ASSESSMENT

Our preliminary risk services help reduce or prevent threats in advance, while ensuring clients remain compliant with all relevant regulations.

RELIABILITY AND REDUNDANCY OPTIMIZATION

Our experts evaluate the redundancy installed in vessel sub-systems to identify those that could benefit from adding redundancy to minimize downtime and improve operability.

VESSEL DESIGN REVIEW

We provide a qualitative review of relevant information to establish a preliminary technical evaluation of the ship owner's chosen design.

TECHNICAL EVALUATION

By assessing the main characteristics and components of bulk carriers' engines, fuel gas handling systems, fuel storage and gas delivery chain, we can identify areas for improvement.

HULL PERFORMANCE AUDIT

Our experts can evaluate hull performance, determine the need for hull optimization, and provide guidance for design optimization.

LNG TANK SIZE OPTIMIZATION

Our experts compare two-stroke dual-fuel engines to select the most economical solution, and review LNG tank size based on trading routes and refueling detours.

VESSEL PERFORMANCE OPTIMIZATION

We perform vessel performance optimization by providing faired hull lines that are fit for purpose, based on vessel-specific operating conditions and optimized LNG storage and propulsion systems.

HULL SCANTLINGS ASSESSMENT

We review hull structural scantling, including longitudinal sections and bulkheads, in order to evaluate potential steel weight savings.

BUREAU VERITAS **SOLUTIONS** Marine & Offshore

"Limiting a vessel's environmental footprint means looking at a ship's performance from all angles, considering everything from fuel choice and consumption to onboard systems and equipment performance. Energy optimization therefore complements the use of alternative fuels, with the two working in harmony to ensure vessels are powered as sustainably as possible."

Carole Pavaut
Managing Director
Bureau Veritas Solutions – Marine & Offshore

BV Solutions M&O *is the BV Group company dedicated to providing independent support to clients for Marine & Offshore non-classification activities via its core services, including risk assessment, project management, technical consulting, digital solutions and environmental development. Technical advisory services are delivered by independent BV entities to avoid any potential conflict of interest with 3rd Party services.*

THE FIRST STEP

TOWARD NET ZERO

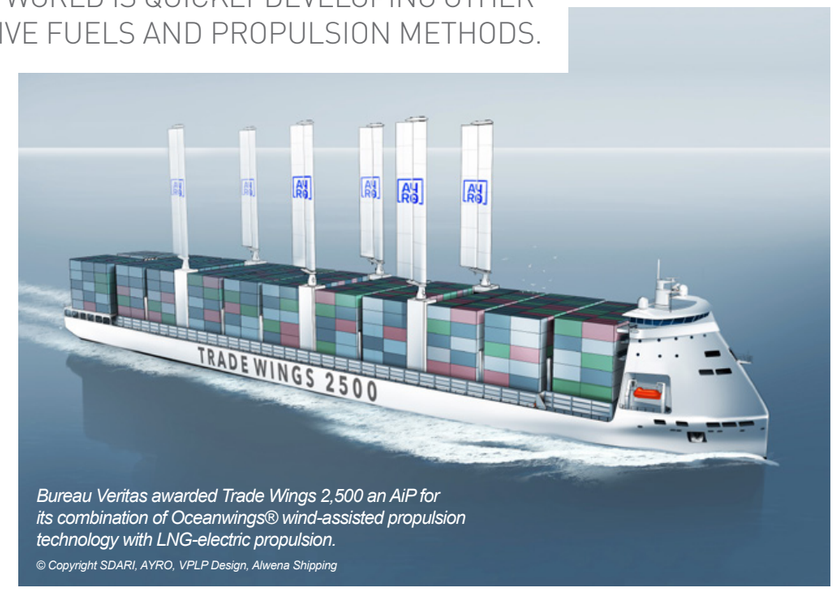
WITH THE ABILITY TO LIMIT CO_2 EMISSIONS BY 20%[5], LNG IS CURRENTLY THE MOST WIDELY USED ALTERNATIVE FUEL. HOWEVER, THE SHIPPING WORLD IS QUICKLY DEVELOPING OTHER LOW-CARBON ALTERNATIVE FUELS AND PROPULSION METHODS.

BIOFUELS, A CLEAN COUNTERPART TO LNG

Biofuels are a sustainable form of energy derived from the harvesting and processing of biomass, such as waste, charcoal and wood. As marine fuel, biofuels can have a net-zero carbon impact[6], helping reduce GHG emissions. They offer multiple advantages, including compatibility with modern engines and little need for specialized infrastructure. However, experts estimate that at most, biofuels could supply fuel for 30% of the global fleet. This means that biofuels will likely be used alongside LNG and other clean drop-in fuels.

AMMONIA, A SOLUTION ON THE RISE

Ammonia is another fuel poised to help ship owners limit GHG emissions. Nonetheless, while the processes for ammonia storage and transport are well established, innovation is still needed to manage ammonia's technical challenges. Bureau Veritas has already developed Rules for the use of ammonia as fuel and a corresponding class notation, Ammonia-Prepared. Our experts have also delivered two Approvals in Principle (AiP) to GTT for a Mark III system suitable for the containment of ammonia in LNG as fuel applications.



Bureau Veritas awarded Trade Wings 2,500 an AiP for its combination of Oceanwings® wind-assisted propulsion technology with LNG-electric propulsion.

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HYDROGEN, AN UPCOMING ALTERNATIVE

Hydrogen, which can be produced using renewable electricity, is another long-term solution for clean fuels, and already present in fuel cell applications onboard small vessels. The next challenge for marine stakeholders will be the long-distance and long-term onboard storage of hydrogen for seagoing vessels. Bureau Veritas is currently developing Rules for the safe use of hydrogen as fuel, to be published by 2022.

WIND PROPULSION TO LIMIT EMISSIONS

Wind-assisted propulsion is emerging as a powerful alternative for reducing ships' environmental impact, as rotating, rigid and kite sails can be installed onboard. This limits vessels' reliance on conventional propulsion, minimizing GHG emissions and reducing environmental footprint. To help clients move forward with wind-assisted propulsion, Bureau Veritas has developed a classification framework for wind propulsion systems and two corresponding notations, WPS-1[7] and WPS-2[8].

(5) Depending on engine type and ship profile
(6) If produced as part of a sustainable supply chain
(7) For wind-powered ships with standing rigging
(8) For vessels with both standing and running rigging

YOUR CLASSIFICATION PARTNER OF CHOICE

WE KNOW
COMMODITY TRADERS

Our experts at Bureau Veritas Commodities, Industry and Facilities have built longstanding, close relationships with major commodity trading companies around the world. We understand the technical, logistical and financial challenges of helping clients minimize their environmental impact and improve full supply chain sustainability. We provide a range of key services to help companies meet the evolving expectations of charterers, governments, regulatory bodies and consumers.

WE KNOW
BULK CARRIERS

Bureau Veritas Marine & Offshore has decades of experience in the classification of large bulk carriers. We support ship owners in addressing safety, environmental, security and design challenges, providing crucial services from the design phase through to operations. Home to over 2,650 classification experts and 400 marine surveyors trained to conduct bulk carrier inspections, Bureau Veritas helps ensure the long-term safety and reliability of bulk carriers.

WE KNOW
LNG

Bureau Veritas provides a wealth of expertise in the safe handling, consumption and bunkering of LNG. We have actively contributed to the development of LNG extraction, processing and transportation for over 60 years, helping bring LNG projects to safe, successful conclusions. We provide key support for overcoming the technical, structural and safety challenges of LNG-powered vessels, helping construct newbuilds and retrofit in-service vessels to use LNG as fuel.

WE KNOW
ALTERNATIVE FUELS

Bureau Veritas is on the front lines of innovation for existing and alternative fuels, helping players across the maritime industry safely develop the low- and zero-carbon fuels of tomorrow. Building on our class experience with LNG, Bureau Veritas is actively working on JIPs and AiPs for hydrogen and fuel cells, wind propulsion and carbon capture and storage.

WE KNOW
SUSTAINABILITY

Bureau Veritas helps commodity trading companies and ship owners achieve full supply chain sustainability by minimizing the environmental impact of their operations and assets. Our solutions are designed to help optimize fuel efficiency, limit GHG emissions, and protect the marine ecosystem. Our BV Green Line of services helps clients implement, measure and achieve their sustainability objectives, while improving health and safety.

BV GREEN LINE

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Shaping a World of Trust

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