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Volume 32 • Number 4

Marine News

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New guide answers key industry questions

Sylvain Julien
One-on-one with BMT's director of naval architecture

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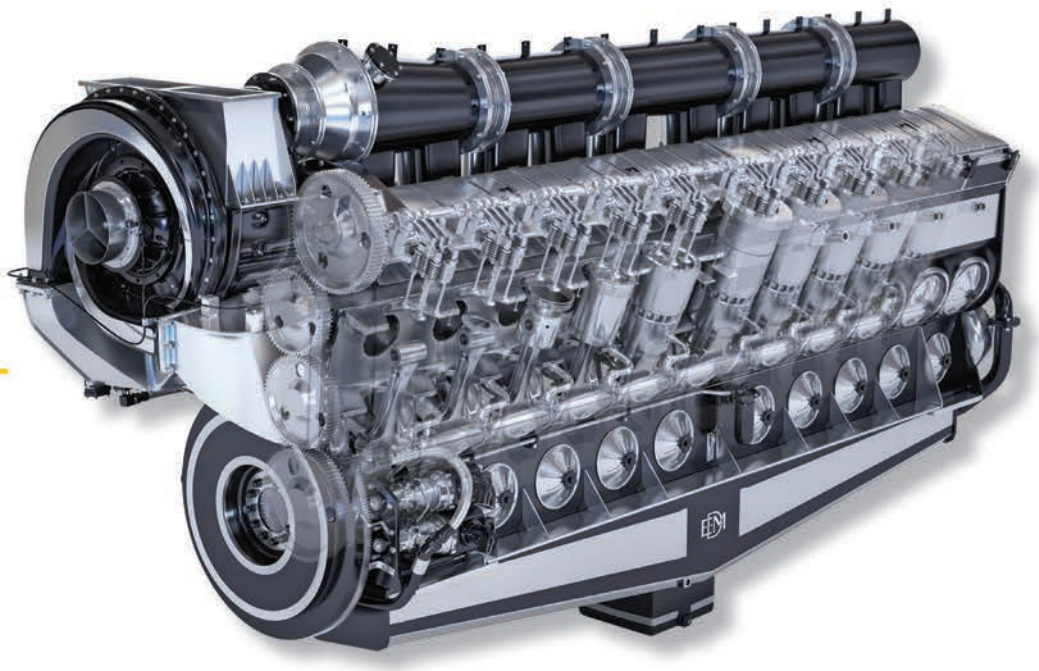

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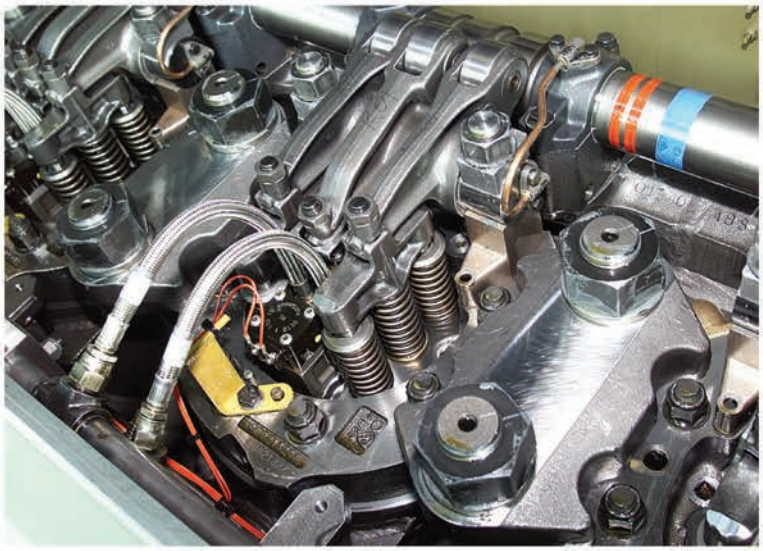

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Dominion Energy

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On the Cover

After several false starts through the years, we're seeing now that 2021 is when the U.S. offshore wind industry begins to realize its potential.

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**Source: Euroconsult, Prospects for Maritime SATCOM, 2020, market share VSAT units

Editor's Note

Eric Haun, Editor,
haun@marinelink.com

Ready, set, go!

The global offshore wind market is expanding rapidly, and now, finally, the race is on in the U.S. to harness this immense untapped power source.

According to World Energy Reports, there are currently 13 offshore wind projects lined up to start construction in the U.S. within the first half of this decade, with another nine in the midterm planning stage and eight in the early planning stage. WER has also identified an additional eight areas likely to support future offshore wind projects in the years ahead. Simply put, that's a lot of projects, and each will bring new and unique opportunities for American businesses and workers for many years.

The prospects are exciting, frankly. And they're also rather large. WER says the current 27.6-gigawatt project pipeline will require capex of $87.5 billion to bring onstream, plus a recurring annual opex of $2.8 billion once delivered and $12.5 billion to eventually decommission these projects at the end of commercial operations. What's clear is that this emerging industry will be a real driver for U.S. maritime, offshore, subsea, ports and logistics businesses and beyond for decades to come.

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By the Numbers

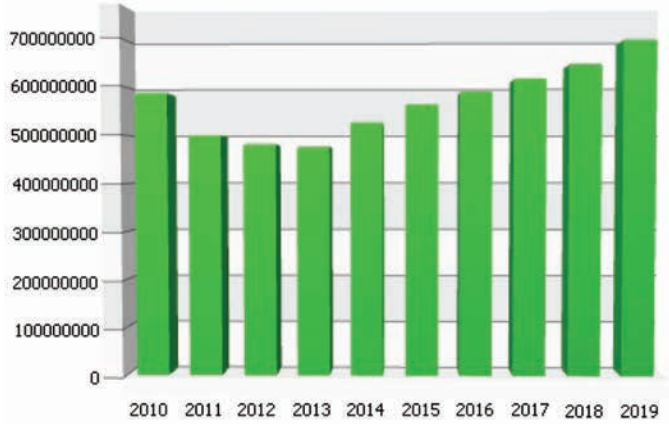
Notes:
1) The figures on this page are total oil and gas production volumes removed from the ground. Sales volumes will differ slightly from production volumes for any given month/year due to fuel, flare, and vent volumes, or sales which occur in a different month from the production month. All production figures on this page are subject to revision.
2) Effective January 1, 2018, monthly reinjected gas volumes will no longer be reported as gas production volumes in the Alaska OCS Region.
(Source: BSEE)

US Outer Continental Shelf Oil and Gas Production

Oil and Gas Production by Calendar Year

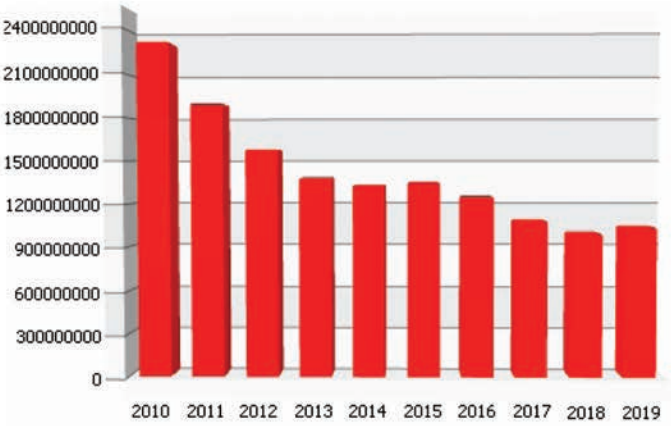
(Data obtained from Oil & Gas Operations Reports submitted by offshore operators to the Office of Natural Resources Revenue)

Oil (barrels)				
Year	Alaska	Pacific	Gulf	Total
2010	1,337,999	21,707,342	566,628,383	**589,673,724**
2011	1,057,866	19,820,270	481,697,096	**502,575,232**
2012	627,108	17,678,493	464,786,485	**483,092,086**
2013	669,148	18,565,833	459,046,740	**478,281,721**
2014	625,303	18,506,540	510,467,459	**529,599,302**
2015	609,912	11,451,040	553,007,049	**565,068,001**
2016	548,343	6,142,614	585,712,140	**592,403,097**
2017	513,420	5,714,391	613,670,834	**619,898,645**
2018	491,616	4,873,812	642,071,188	**647,436,616**
2019	479,711	4,448,922	692,730,312	**697,658,945**



Gas (MCF)*				
Year	Alaska	Pacific	Gulf	Total
2010	29,659,633	41,251,142	2,250,426,803	**2,321,337,578**
2011	37,801,877	36,591,564	1,826,593,930	**1,900,987,371**
2012	21,960,989	27,263,741	1,535,897,665	**1,585,122,395**
2013	29,293,586	27,505,401	1,328,279,728	**1,385,078,715**
2014	31,264,462	28,313,384	1,276,676,600	**1,336,254,446**
2015	32,249,585	14,808,085	1,307,390,047	**1,354,447,717**
2016	31,705,685	4,501,303	1,220,854,978	**1,257,061,966**
2017	2,565,781	3,949,960	1,078,719,104	**1,085,234,845**
2018	3,211,259	3,427,708	993,097,983	**999,736,950**
2019	2,748,657	2,875,859	1,034,230,436	**1,039,854,952**

*MCF = 1,000 cubic feet



Oil and Gas Production by Calendar Month

(Estimated oil and gas volumes for latest 12 months using BSEE's Liquid & Gas Verification Systems)

Oil (barrels)				
Month	Alaska	Pacific	Gulf	Total
January 2020	44,208	419,396	61,639,275	**62,102,879**
February 2020	40,039	387,400	57,856,227	**58,283,666**
March 2020	41,619	407,683	61,248,435	**61,697,737**
April 2020	38,105	388,354	57,340,665	**57,767,124**
May 2020	35,935	404,304	49,493,272	**49,933,511**
June 2020	34,592	370,549	46,339,273	**46,744,414**
July 2020	39,814	364,869	50,979,824	**51,384,507**
August 2020	38,991	362,030	36,545,850	**36,946,871**
September 2020	37,878	349,896	45,784,715	**46,172,489**
October 2020	39,566	356,045	32,782,504	**33,178,115**
November 2020	30,314	372,012	51,068,150	**51,470,476**
December 2020	33,006	386,275	55,371,549	**55,790,830**

Gas (MCF)*				
Month	Alaska	Pacific	Gulf	Total
January 2020	223,076	246,983	87,751,520	**88,221,579**
February 2020	216,052	235,169	82,537,676	**82,988,897**
March 2020	163,023	241,358	89,254,858	**89,659,239**
April 2020	145,550	220,501	81,544,364	**81,910,415**
May 2020	150,175	228,554	65,462,492	**65,841,221**
June 2020	145,003	217,323	63,372,181	**63,734,507**
July 2020	172,138	235,197	69,746,974	**70,154,309**
August 2020	152,043	228,610	45,349,181	**45,729,834**
September 2020	164,389	221,123	50,255,828	**50,641,340**
October 2020	152,140	229,050	39,983,687	**40,364,877**
November 2020	177,859	220,354	61,357,247	**61,755,460**
December 2020	170,562	227,575	68,226,497	**68,624,634**

*MCF = 1,000 cubic feet

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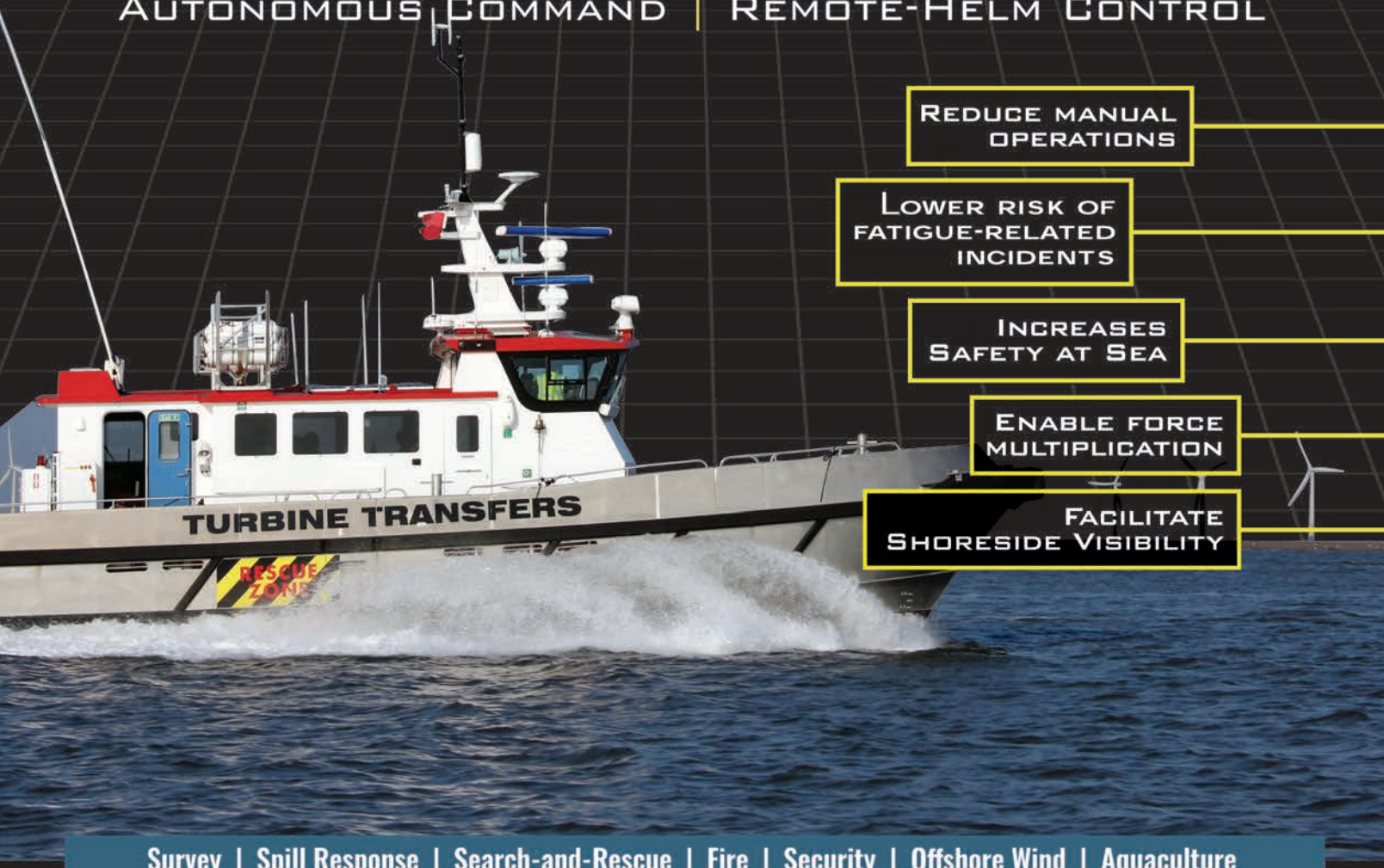

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Sylvain Julien

Director of Naval Architecture, BMT

Sylvain Julien first trained as a Mechanical Engineer and worked for several years in the special purpose machines sector, serving the aeronautic and automotive industry. In 2007, after completing a naval architecture degree, he joined BMT as a naval architect and was appointed director of naval architecture in 2020.

Julien has gained extensive experience in the naval architecture of various specialized vessels during his time at BMT, including workboats, motoryachts, high speed ferries and patrol boats, as well as a wide variety of hull forms such as monohulls, catamarans, SWATHs, hydrofoils and hovercrafts. He understands the need to continually develop and keep up to date with a wide base of technical knowledge across disciplines to best answer for customer requirements. In his current role, Julien is responsible for the team that delivers vessel front end design across the various sectors served by BMT Specialized Ship Design, and he looks after the business development and project delivery for the commercial sector.

Here, Julien discusses the digitalization, decarbonization and autonomous trends driving ferry design.

All images: BMT

The BMT-designed ferry Enetai was recently built and delivered to Kitsap Transit. To start off, will you please give an overview of the vessel and the project with insights on what you believe makes this vessel and this series unique?

SJ: As a general introduction, Enetai is the first of two 140-foot high-speed catamarans. They are built by Nichols Brothers Boat Builders on the U.S. West Coast to a BMT design. Sister vessel Commander is due to be launched later this year, and still to exactly the same spec. The vessel has a capacity of 255 passengers on a single deck, and with dedicated storage for 26 bikes.

It is designed with a characteristic round foredeck shape common to many larger ferries operating in the area to ensure good interface with the existing infrastructure. The vessel is designed around a twin shaft propulsion system, so it's an mtu 4000 engine and Kongsberg waterjets. This design also includes an active ride control system by Naiad, which provides very good ride comfort at high speed in the rough seas that it's coming across.

The vessel is also equipped with a selective catalytic reduction (SCR) system, one for each engine, toward compliance with EPA Tier 4 requirements. This system represents in volume about the same size as the engine with a weight for about five tonnes, so for a high-speed craft it's a huge design driver. To put that into context, this weight equates to about 70 passengers or serves a total passenger capacity of the vessel. So, a significant amount of time and work has been done to ensure good integration of the system for the maintenance aspect, but also to limit the added weight impact on performance and fuel consumption.

The result of that work is a 38-knot vessel, with a cruising speed in normal service condition of 35 knots. In fact, the design performance was a contract requirement, and this is a result of a couple of things. First, BMT and Nichols Brothers embarked on a very strict weight control process to ensure that weight targets were met. From equipment selection to review of small details, every aspect of the design was reviewed to ensure a lightweight solution. The hull form has been designed specifically to address the additional weight and added space required for the SCR

system, and all of that while delivering lowish characteristics and, of course, high level of performance.

This is a transcendent time across all maritime sectors with digitalization, decarbonization, and autonomy coming to the fore. When you look at the markets that you serve, what do you see as the leading drivers for the design and construction of ferries in the coming decade?

SJ: Definitely there are many technological developments currently changing the way new vessels are designed, but also produced and operated. Each market within the maritime industry are developing the answers that best suit their needs. So if we start with digitization and perhaps the notion of digital twin, it is clear that there is a trend to collect more and more data on board vessels, and try to liberate these data to offer insights into operation and maintenance. As a vessel designer, BMT sits at the very start of this process and typically generates as part of the detail production design a single 3D engineering model of the vessel that includes vessel structure, mechanical systems and where needed outfits to support the production process. This information can be used throughout the design approval process and remain available to support the vessel through its life. The need to then feed such a model with data collected on board will vary enormously depending on the sector of the industry. Each process does make sense in defense and perhaps the commercial shipping sector, but it may not be beneficial in the context of high speed passenger craft, such as the Enetai. What an operator needs is the tools to support a strong maintenance plan, and tools to ensure that the vessel is used at best performance. If the former is generally well-established and often provided by the equipment suppliers, the latter tends to be overlooked. And as a first step toward digitization, this will certainly be a first choice.

If we looked at trending topics such as autonomy—

Enetai is the first of two 140-foot high-speed catamarans designed by BMT and built by Nichols Brothers Boat Builders for Kitsap Transit.

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which is certainly a fascinating subject—there are a lot of expectations around this technology, but the reality of its application means that full autonomy in the short term is only really likely to develop in initial application. And I'm talking here about small survey or surveillance craft. Such application out of the main shipping lane is yet to develop a need for constant remote control. In the next few years, our perception is to try and avoid the issues of ship shore interface and perhaps safety in busy shipping lanes. It's likely that the technology will first develop by offering intelligent level of autonomy, whereas the technology is used as a way to reduce manual control. It also brings a level of controversy, of course. In the longer term, we see the river transportation and then perhaps short sea shipping as the main sectors of the industry where autonomy will be able to develop and mature. Typically, these routes are shorter and avoid, to some extent, issues associated with vessel reliability.

There is much to discuss in the matter of decarbonization with alternative fuels, batteries and hybrid solutions. How fast and how far are operators moving to reduce their emissions, and what do you see as the main tools or techniques to get it done?

SJ: Decarbonization is a very trendy topic, both in the U.S. and globally. If the decarbonization is the end goal and generally reducing emissions is a path to meet that goal, I think it's important to remember that the correct foundation is and will always be the right vessel design for the intended operation. It could be that the best way to reduce emissions remains to reduce the energy requirements in the first place. And this process should be used to define the vessel requirements as well, reducing speeds or parameters that will allow to reduce carbon emissions. An efficient hull form and generically an efficient design is key to leverage the technologies you have mentioned,

BMT has designed a panamaran vessel platform for long-range autonomous operations.

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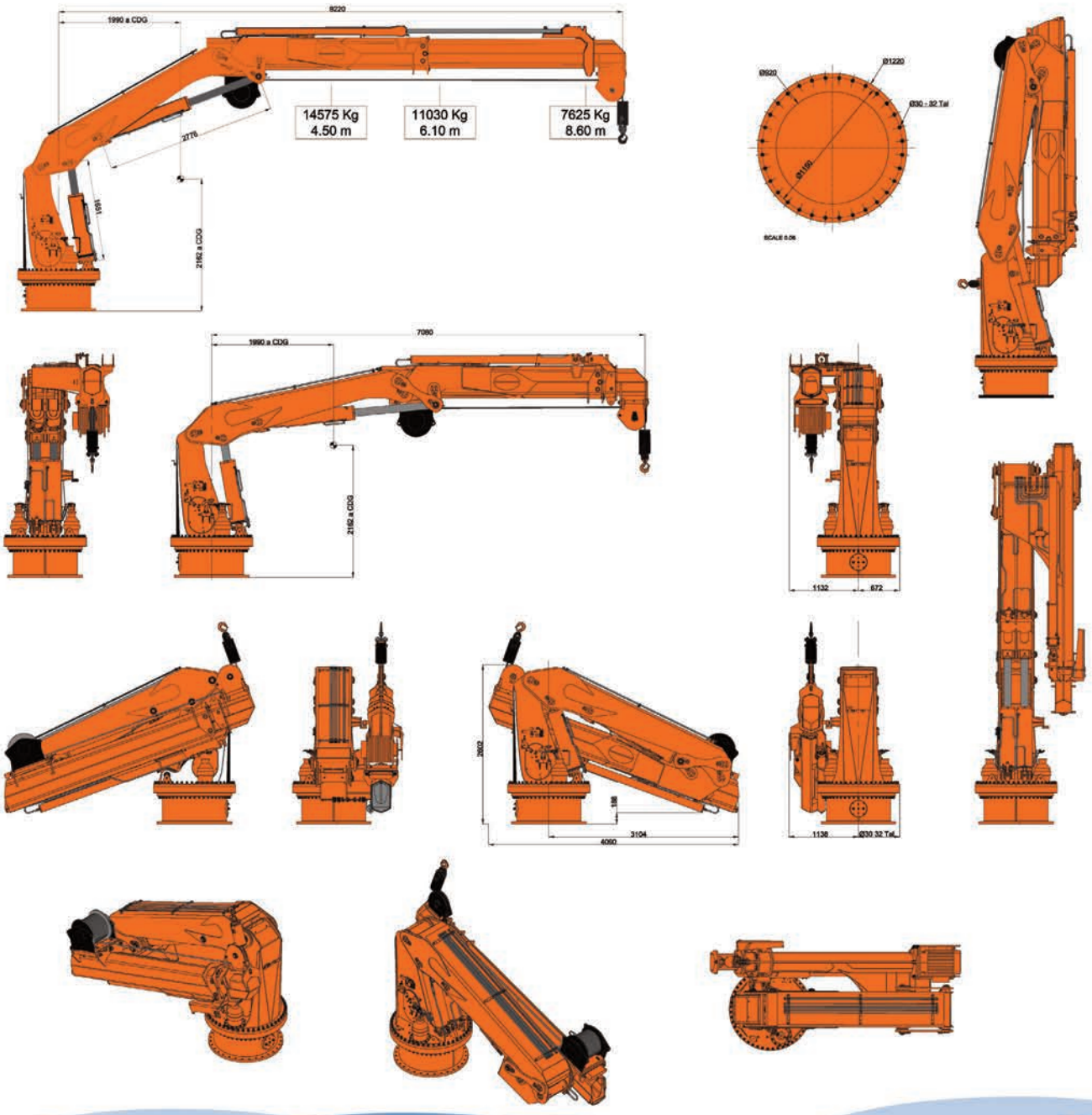

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especially as you are trying to apply them to power hungry applications such as a high-speed ferry.

New technologies such as a hybrid systems, batteries or alternative fuels all come with strings attached, such as higher capital costs or less flexible vessel profile. It is therefore important to select the option among many that provides the right benefits to a given application or route. Over the years BMT has designed LNG vessels and hybrid crafts, and in each case it was very important to consider the cost benefit of each option. As a simple example when considering capital costs, you may look at LNG bunkering that is cheaper than gasoil, or we've designed hybrid systems that can save you money in term of maintenance. Ultimately, and especially in this challenging time, an operator needs to ensure when considering new technologies that it actually makes sense for their business, and we are certainly happy to help with that process.

I am sure that investment in research and development at BMT is ongoing. Can you discuss what you're looking at today for tomorrow, or discuss a couple projects that you think best illustrate the direction that you're heading?

SJ: We've got quite a lot of interesting projects going on. As we work on many different vessel types and different markets such as ferries, wind farms support vessels, crew boats for oil and gas, patrol boats, fireboats and so on, we have an ongoing thread of work leveraging development across markets and applying it to new applications.

Beyond that, we have specific projects addressing emerging market requirements, and I can give you a couple of examples. As we talked about autonomy, one good example is a new concept we recently released. This takes the form of a new pentamaran design specifically developed for very long range applications. Beyond the long-range requirements, we also worked on the many aspects associated with an autonomous vessel, such as system reliability and the often overlooked optimization on shore that goes with the absence of crews.

Another example is the outcome of some work we did a couple of years ago on the mini SOV design. The vessel will offer increased transfer capability in wind farm markets compared to typical crew transfer vessels, but it also offers a significantly lower cost base for accommodation and transfer of wind farm technicians compared to a traditional monohull SOV. The first vessel is now in operation in the rough seas of the Taiwan's Strait, and it's a good example of what we do.

The BMT-designed 36-meter service accommodation transfer vessel (SATV) has commenced operations and maintenance activities at the Formosa 1 offshore wind farm project in Taiwan.

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Column

Offshore Jobs

US Jobs from US Offshore Energy: A Goal 44 Years in the Making

By Aaron Smith, President & CEO, OMSA

I have a good friend named John Guste.

He and his wife grew up in the same neighborhood as my wife, they all went to college together, and now our kids are friends. As a doctor, I'm sure he has little concern with the messy, yet mundane, intricacies of offshore energy and maritime policy. You can imagine my surprise then when one night while I was reading the Congressional Record from 1977—I'm a blast at parties—to see John's grandfather testifying before the U.S. House of Representative's Ad Hoc Select Committee on Outer Continental Shelf (OCS) issues.

Mr. Guste and the other panelist testifying that day were urging Congress to recognize that the OCS contained amazing potential for energy development but that this resource had to be developed responsibly.

Specifically, citing the increasing offshore oil and gas development experienced in the late 1970s, he urged Congress to ensure offshore energy development protected the environment, the valuable fisheries on the OCS, and the American taxpayers who own the OCS' resources.

Protecting the U.S. taxpayer was particularly important to Mr. Guste as he had watched the development of oil and gas in the Gulf of Mexico and saw an increasing number of foreign vessels and rigs, manned by foreign mariners working off the coast of Louisiana. Instead of having Americans watch foreign citizens benefit from U.S. energy development, he wanted Congress to ensure that U.S. workers, mariners, and shipyard personnel to be the beneficiaries of energy development on land owned by the U.S. taxpayer.

Due to the advocacy of Mr. Guste, and other organizations such as the Seafarers International Union, when Congress amended OCSLA in 1978, they created a national manning requirement, whereby only U.S. citizens may be employed for crewing of vessels or rigs used for OCS operations.

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Unfortunately, half a century later, the problems that plagued Mr. Guste's Gulf of Mexico, not only plague today's oil patch, but have also migrated to the U.S. East Coast where foreign vessels are leveraging their cheap labor costs to underbid U.S. vessels for offshore wind work.

The problem is with the implementation of the OCSLA manning standard. While Congress saw the value in "providing the fullest possible employment for Americans" in offshore energy, it also was afraid that foreign countries would use our manning standard as justification to exclude U.S. workers from energy development off their coasts. To prevent such retaliation, Congress included a caveat to the manning standard, allowing vessels more than 50% foreign owned to employ foreign mariners.

It is clear that Congress intended this access to be reciprocal. We provide access to our waters in return to access to other nation's waters. The only way such a reciprocal relationship works is if the foreign vessel's mariners and ownership are from the same country. Any other interpretation requires one to believe that Congress wanted to ensure our mariners had access to the waters of landlocked countries, were trying to protect our access to nonexistent energy operations, or thought that retaliating against one country would make another country do what we want them to do.

Unfortunately, Congressional intent has not been honored. Instead, foreign owners, from the U.K., Norway, and even Luxembourg employ foreign vessels in U.S. waters utilizing mariners not from these high-wage nations, nor are their mariners U.S. citizens. Instead, these vessel owners employ mariners from countries like Russia, the Philippines and China.

When these foreign mariners are working in U.S. waters, they are not paid U.S. wages. As an example, a crewing agent from the Philippines recently sent me their official pricing sheet for foreign mariners working on energy vessels in U.S. waters. This document advertised rates for captains 30% below the U.S. market rate and even bragged about offering the paid positions onboard a vessel $40 dollars a day, or $3.34 an hour, or 82% below what their U.S. counterparts are paid.

When you add the savings foreign vessel operators enjoy with their lower tax and regulatory compliance cost it is easy to see why there were double the number of foreign vessels working in the offshore wind farms last summer.

This is a problem that Congress could fix today, and OMSA has a solution.

OMSA proposes that Congress should restore its intent by clarifying that foreign owners employ only mariners from their own nations or U.S. citizens on their vessels when these vessels are working in U.S. waters. This change would restore the reciprocal access intended by Congress and remove approximately 60% of the cost advantage that foreign vessels enjoy compared to their U.S. counterparts.

In turn, this change will mean that more Americans are employed in U.S. offshore energy, honoring the vision proposed by Mr. Guste in 1977 and ensuring U.S. offshore wind means jobs for U.S. mariners.

Column

Offshore Policy

2021: A Year of Offshore Energy Potential

By Erik Milito, President, National Ocean Industries Association (NOIA)

After what has seemed like the longest year ever, the offshore energy sector is emerging from a position of strength, from the standpoint of both economics and sustainability. Between the lockdowns implemented to reduce COVID-19, which reduced energy demand, to the oil price war between state-backed producers, 2020 was an unprecedented storm that hit the American offshore energy market. Now, there are unmistakable signs of a recovery, and policy makers in Washington, D.C. should embrace the opportunity before us to for sustained economic, environmental and emissions performance.

BP

To begin with, the resilience of the offshore energy industry during 2020 should be applauded. The U.S. offshore energy industry adapted to these unprecedented challenges, delivering energy, jobs and investment while maintaining world class environmental performance.

Before much of the world truly grasped the significance of COVID-19, the offshore industry began industrywide coordinated action to mitigate the spread of the virus. Offshore companies and regulators quickly developed and shared best practices on mitigation measures to prevent the spread of COVID-19 in the confined spaces offshore.

The leadership and initiative of the industry during 2020 was a stabilizing force during a turbulent time. Not only did Gulf of Mexico oil and gas production safely keep energy flowing, but we also provided hydrocarbons and the molecular building blocks integral for the medicines, face masks, surgical gowns and other medical equipment necessary to fight COVID-19.

As momentum grew in the U.S. economy, oil prices increased and the offshore energy industry was positioned to correspondingly meet the call for rising energy demand. Between August 2020 and December 2020 daily oil production in the U.S. Gulf of Mexico increased from 1.19 million barrels of oil per day to 1.77 million barrels of oil per day.

For the hundreds of thousands of women and men whose jobs depend on Gulf of Mexico oil and gas production, the rise in energy demand is welcome news. An estimated 50,000 jobs supported by the Gulf of Mexico oil and gas industry were lost during 2020. While most jobs and investment for the off-shore oil and natural gas industry are naturally clustered along the Gulf Coast, every single U.S. state has businesses that are part of the vendor chain. A rising tide of Gulf of Mexico oil and gas produc-

tion can lift the economies and livelihoods in every state.

Recovering energy production in the Gulf of Mexico is also a win for the environment. In the Gulf of Mexico, the advancement of technology has turned the region into an American energy and emissions asset. Gulf of Mexico oil production has a carbon-intensity one-half of other oil producing regions. Deepwater production, which accounts for 92% of production in the Gulf of Mexico, provides the lowest carbon intensity of any oil producing region.

Likewise, along the Atlantic Coast, a new era of offshore energy is beginning—that of renewable wind energy. After years of slower-than-anticipated progress, the regulatory and permitting process for the first wave of U.S. offshore wind projects, including Vineyard Wind and South Fork Wind, is steadily progressing.

U.S. states have established more than 29,000 MW of offshore wind procurement targets. In the near term, offshore wind developers plan to bring 9,100 MW of wind online by 2026 through 13 offshore wind projects.

This is great news for the entire offshore energy industry. The same companies that built the Gulf of Mexico oil and gas industry are lending their experience to build out wind projects along the Atlantic Coast. Existing offshore wind projects are expected to generate 83,000 new, well-paying jobs by 2030, with the bulk of the jobs concentrated during the development and construction phase.

With continued opportunities for new access, the offshore wind industry is poised to grow even more. Wood Mackenzie conducted a study on how beneficial the wind opportunity is for Americans. Just four lease opportunities, offshore New York, the Carolinas, Maine, and California, could generate 28 new gigawatts of clean energy and $1.7 billion in U.S. Treasury revenue by 2022. To build up these windfarms, the industry would support an additional 80,000 annual jobs and generate $166 billion in additional investment by 2035.

Energy demand around to world continues to rise. People of all walks of life depend upon abundant, affordable, and reliable supplies of energy for maintaining a high quality of life. Around 1 billion people still lack access to electricity, and global energy needs are expected to increase by 25% by 2040.

Without the U.S. offshore, energy consumers of today and tomorrow would be forced to turn elsewhere for their energy needs. Every barrel of oil and every watt of electricity that the women and men of the U.S. offshore sector produce is energy that our nation does have to import from state-backed producers in pollution havens such as Russia or China.

Policymakers should recognize what our industry is achieving in the Gulf of Mexico and along the Atlantic Coast, and work with us to build even greater achievements. The offshore industry is unique in how we can provide energy safely and sustainably at such a large scale. The focus should be on embracing all forms of offshore energy—oil, natural gas and wind—and opening the door to the eco-nomic and environmental opportunities Americans desperately need.

Column

Washington Watch

Ready Your Salad Fork for Biden's Offshore Energy Plans

By Jeff Vogel, Partner, Cozen O'Connor's Transportation & Trade Group

In Antony and Cleopatra, Shakespeare coined the phrase "salad days" to mean a youthful time filled with unbridled enthusiasm and idealism. Indeed, youth, much like salad, is often raw, flavorful and most of all… green. Therefore, it is fitting to think of our present time as the salad days of offshore energy in the United States. Let's dig in.

Executive Order appetizers

On January 27, President Biden took early steps to implement his campaign promise to transition the United States away from fossil fuels and invest in renewable energy, with the issuance of the "Executive Order on Tackling the Climate Crisis at Home and Abroad." The Executive Order directs the Secretary of the Interior to (1) pause on entering into new oil and natural gas leases on public lands or offshore waters, (2) launch a rigorous review of all existing leasing and permitting practices related to fossil fuel development on public lands and waters and (3) identify steps that can be taken to double renewable energy production from offshore wind by 2030.

The Executive Order's impact on offshore oil and gas development has been immediate, with the Bureau of Ocean Energy Management (BOEM) effectively canceling the first two planned offshore oil lease sales of 2021. On February 12, BOEM announced that it was rescinding the Record of Decision for Gulf of Mexico Oil and Gas Lease Sale 257, scheduled to occur on March 17, 2021. The sale would have included approximately 14,594 unleased blocks, totaling 78.2 million acres of the Gulf of Mexico.

BOEM's Outer Continental Shelf (OCS) Oil and Gas Program for 2017-2022 also included a lease sale in the Cook Inlet Planning Area, which was scheduled for 2021. On January 15, BOEM released a draft Environmental Impact Statement (EIS) for public comment, analyzing the potential environmental impacts of holding the proposed sale. On February 4, BOEM canceled the draft EIS public comment period, effectively ending the planned sale. It is reasonable to assume that the two other anticipated lease sales under BOEM's OCS Oil and Gas Program, scheduled to occur in late 2021 and 2022 to lease additional blocks in the Gulf of Mexico, will not go forward.

Accordingly, the Biden Administration has sent an unequivocal message—the immediate future of U.S. offshore energy lies in renewables.

Jones Act main course

While President Biden's Climate Change Executive Order closed the door on oil and gas lease opportunities, it opened a window on offshore wind. In fact, based on projected de-

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velopment opportunities, the Executive Order's policy goal to double renewable energy production from offshore wind by 2030 seems to undersell the sector's prospects. The work towards achieving—and exceeding these offshore wind policy goals is well underway, with BOEM announcing on February 3 that the agency has resumed its environmental review of the Vineyard Wind Project. The project aims to construct 62 wind turbine generators 15 miles off the coast of Massachusetts, which will generate up to 800 megawatts of electricity (enough electricity to power 400,000 homes).

Jones Act vessel operators will play a major role in developing Vineyard Wind and numerous other offshore wind projects undergoing federal review. President Biden reaffirmed this fact in his January 25th "Executive Order on Ensuring the Future Is Made in All of America by All of America's Workers," which included the Jones Act in its list of "Made in America Laws." The associated White House press release noted that "the President will continue to be a strong advocate for the Jones Act... which supports American production and America's workers," and further that "with the signing of the 2021 National Defense Authorization Act, the Jones Act has also been affirmed as an opportunity to invest in America's workers as we build offshore renewable energy, in line with the President's goals to build our clean energy future here in America." As discussed in the February edition of Marine News ("Winds of Change in D.C."), the 2021 National Defense Authorization Act, enacted by a Congressional veto override on January 1, 2021, amended the Outer Continental Shelf Lands Act to clarify that the Jones Act extends to installations on the OCS engaged in the exploration, development, and production of non-mineral energy resources, including wind.

Desserts ahead

These salad days of offshore renewable energy development may be just an appetizer. While Vineyard Wind leads the way, BOEM has received Construction and Operation Plans (COPs) for 10 U.S. offshore wind projects. Submission of the COPs represents a critical step in the administrative process used to approve renewable energy projects. The COPs, once deemed complete by BOEM, undergo an environmental review under the National Environmental Policy Act (NEPA), which requires significant interagency consultation and public engagement. In addition, once the NEPA process is complete and the COPs approved, the developer must submit a Facility Design Report, a Fabrication and Installation Report, and sufficient financial assurances to support planned decommissioning costs. In many ways, BOEM is, the most critical federal agency when it comes to the future of U.S. offshore maritime operations. The speed with which the agency completes its administrative review will dictate the market entry timing for stakeholders looking to engage in the construction and operation of these offshore wind projects.

Importantly, the menu of potential offshore energy projects is not limited to wind. On February 16, BOEM issued a lease to Oregon State University for the PacWave South Project, the first wave energy research project in Federal waters. The testing area, which will span approximately 1,696 acres or 2.65 square miles, is located approximately seven miles off Oregon's central coast. Once fully licensed by the Federal Energy Regulatory Commission (FERC), construction will commence with operations scheduled to begin as early as 2023. The project will consist of four test berths to support the testing of up to 20 wave energy converter devices, with an anticipated capacity of 20 megawatts. If the project proves successful, the U.S. could someday find its energy demands met by the wind and the waves. For now, however, let's just take our offshore energy development one course at a time.

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A Favorable Fetch for US Offshore Wind: *Port Reinvention in the Air*

By Barry Parker

Offshore wind caught a favorable gust with the 2020 election of Joe Biden, and the following breeze from the early 2021 reconfiguration of the U.S. Senate toward Democrats. Though widely touted as a growth engine for maritime businesses (as well as shoreside trades), the latter years of the Trump administration seemed to see delay after delay.

The class society DNV has been involved in offshore wind since its outset in the early 1990s, and now has 2,000 energy experts working in its efforts supporting this power source. Its business development manager, Nick Prokopuk, described the North American situation as being one of "revolution, not evolution" in a presentation at the recent Greek/Norwegian Chambers of Commerce virtual Shipping Conference, saying that "the growth forecast is exponential." He explained that the coming decade will give rise to a huge demand for vessel construction for installation, service/maintenance, crew transport and guard duties. Speaking about the possible future of installed capacity, he said "the U.S. is looking to surpass what Europe accomplished over 30 years in the next nine to 10 years."

The business is complicated; individual states—many with major decarbonization initiatives—deal with power purchases, but going forward the actual electricity will be generated from lease sites in federal waters (more than three miles offshore), and therefore subject to processes commanded from Washington, D.C. On the shore, building new supply infrastructures requires planning; yet, historically, inter-port coordination, if any, has varied state by state. Thus, new paradigms are emerging in the U.S. Capi-

tol, at deployments offshore and within individual states.

On Capitol Hill, consider the Vineyard Wind project set to produce 800 megawatts (MW) in its first phase deploying 84 turbines, a joint venture between a wind-solar unit in Avangrid (a NYSE-listed producer of energy), and Copenhagen Infrastructure Partners (an investment fund manager specializing in renewable energy). The installation, off the coast of Martha's Vineyard, Mass., was set to be the first major offshore wind farm in the U.S., selling electricity to a group of Massachusetts utility with a 2023 start date. The project was slowed down in early 2020 after offshore fishermen raised concerns about its layout interfering with their routes, and the Bureau of Ocean Energy Management (BOEM), the regulator of offshore energy deployments, delayed its permitting process. Late 2020 saw further delays, as Vineyard Wind sought to halt its permitting process (while reorganizing its footprint with larger turbines, only 62 required in Phase 1), and was greeted with an uncooperative BOEM.

What a difference a fortnight makes. Amid a flurry of Executive Orders from the new Biden Administration, offshore wind was mentioned. A White House summary of action from late January, says, "The order directs the Secretary of the Interior to pause on entering into new oil and natural gas leases on public lands or offshore waters to the extent possible, launch a rigorous review of all existing leasing and permitting practices related to fossil fuel development on public lands and waters, and identify steps that can be taken to double renewable energy production from offshore wind by 2030." In early February, two weeks after President Biden's inauguration, with a new director at the helm of BOEM (part of the Department of the Interior), the agency announced that Vineyard Wind's application was back in the review process. The new Director, Amanda Lefton, who comes from a top energy job in New York State's executive branch, said, in a statement, "BOEM is committed to conducting a robust and timely review of the proposed project."

On the legislative front, there were rumblings that The Ocean-based Climate Solutions Act (HR 8632. 116th Congress), a bill that failed to gain traction after its introduction just prior to the 2020 elections, could be reintroduced in the House of Representatives in 2021. The bill's wording included a nonbinding "Sense of Congress" resolution pointing toward deployment of 30 gigawatts (GW) of electricity from offshore wind by 2030.

Dominion Energy

The U.S. maritime industry is set to mobilize for the widely anticipated boom. Michael G. Roberts, senior vice president at Jacksonville, Fla.-based Crowley Maritime, testifying at the U.S. House of Representatives' Coast Guard and Maritime Subcommittee's mid -February, 2021 hearings on behalf of the American Maritime Partnership (AMP), where he serves as president, described "as what may be a generational opportunity…" for the U.S. maritime industry.

Language in the National Defense Authorization Act (NDAA) for fiscal 2021, passed at the end of 2020, clarified that the Jones Act, an integral feature of the offshore oil patch in the Gulf of Mexico, would be applied analogously to offshore wind. The New Orleans-based Offshore Marine Service Association (OMSA), representing 170 companies, plays a critical role behind the scenes around Capitol Hill. Following the passage of the NDAA, OMSA's president, Aaron Smith, said, "We are immensely grateful that Con-

gress has passed legislation ensuring that all U.S. laws apply to offshore wind development and providing parity between offshore oil and gas projects and offshore wind projects." Early efforts offshore Rhode Island and Virginia may offer the initial paradigm for U.S. turbine assembly, where non-U.S. flagged and non-mobile installation vessels handle assembly of components that are ferried out from the shore in Jones Act suitable tonnage. All manner of offshore service could be handled by U.S. based vessels.

In the individual states, the "renewables" catch-phrase also applies to the reinvention of port facilities—now for a new use. The waterfront and port communities all along the U.S. East Coast stand to gain, and huge investments in landside infrastructure, with hefty employment and spending, are also anticipated, pegged by Crowley's Roberts in his February 2021 U.S. House testimony as "tens of thousands of jobs, tens of billions of dollars in economic output" with ancillary benefit of "play[ing] a significant role in decarbonizing electricity production in the United States." In early February, Crowley announced a partnership with terminals specialist Watco (a holding of Oaktree Capital, a leading private equity investor, with a maritime presence), to bring a turnkey offering to "…owners, operators and local port authorities in support of the offshore wind industry." In March, Crowley announced it is teaming up with Danish shipping company ESVAGT to build and operate purpose-built, Jones Act vessels to support the emerging U.S. offshore wind market.

Reinvention is visible up and down the coast. In conjunction with a New York State Energy Research and Development Authority (NYSERDA) procurement award to Equinor (partnered with energy major BP) for two wind-

New Bedford, Mass.

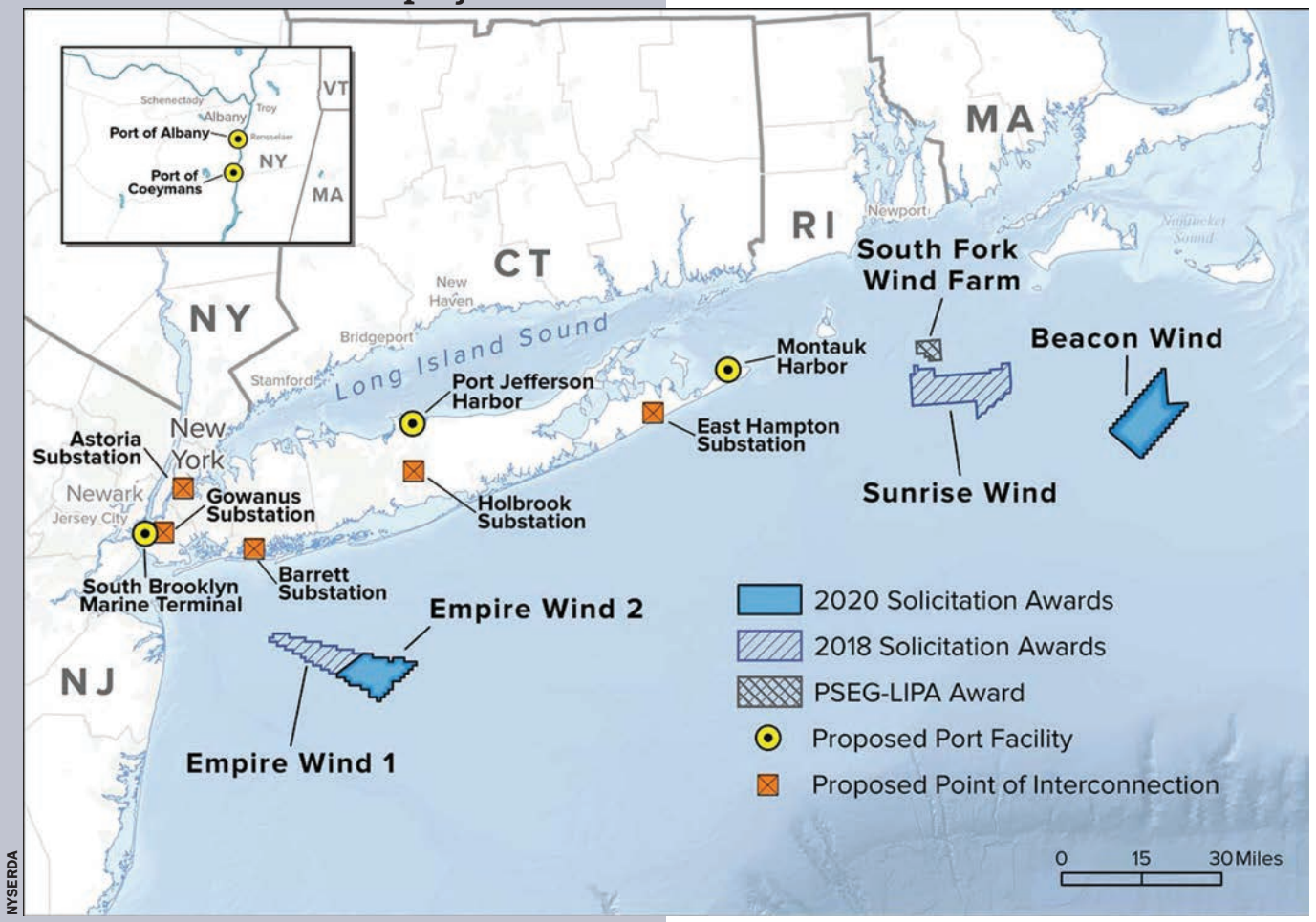
Massachusetts Clean Energy Council

farms, the state will earmark $200 million to fund two ports facilities, a one-time container terminal in Brooklyn that would be a staging and maintenance area, and another up the Hudson River in Albany, where towers would be manufactured. The private sector, including offshore project developers, will kick in comparable amount. Plans are in the works for other port projects along the Hudson River and in Long Island Sound, including Port Jefferson, N.Y., once an active shipbuilding center. In Fall River, Mass., the Vineyard Wind project was funding a study of redeveloping the city's waterfront, while nearby New Bedford had booked leases at an old terminal from Vineyard Wind and Mayflower Wind (an 800 MW project south of Nantucket). In Connecticut, the State Port Authority agreed in early 2020 on a deal that would see a $157 million public/private redevelopment of the State Pier at New London, which handled lumber and general cargo, into an offshore wind staging area supported by a long-term lease from Ørsted. The Danish developer, along with a steel fabricator, has also committed to a major investment for building monopiles (the foundation for the towers) at an old oil terminal later repurposed for the imported steel trades which waned due to tariffs, in Paulsboro, N.J. Further down along the Delware River, an assembly area is planned. In Virginia, an underused container yard, Portsmouth Marine Terminal, has been repurposed as a staging area for Dominion Energy's massive Coastal Virginia Offshore Wind (CVOW) project, with Ørsted working in conjunction with the state leasing dock space in advance of its 12 MW demonstration project deployed in Summer 2020. Maryland and Rhode Island have seen similar arrangements, with old facilities being repurposed.

The role of government, going beyond merely the investment component, will be vital. Crowley's Roberts explained in prepared remarks at the Subcommittee hearing that "like the Europeans, America will need prudent government policies to jumpstart offshore wind development in this country. Regulatory measures needing attention include a more predictable permitting process; a possible regional approach to local content requirements; prompt Coast Guard regulatory actions related to the vessels required to install and service offshore wind turbines; and support and planning for the necessary port infrastructure." In response to a query from newly elected Congressman Jake Auchincloss, representing a district in southeastern Massachusetts that includes Fall River, Roberts identified "a more predictable and responsive permitting system" as being the highest impact item in how the federal government might assist.

The human factor, identified by DNV's Prokopuk as a hurdle to be overcome, will also play an important role in realizing the offshore wind ambitions, with the individual states crafting training initiatives. In February 2020, New York State's NYSERDA announced that $20 million would be earmarked for a to-be-developed Offshore Wind Training Institute, at two Long Island branches of the State University of New York, for training approximately 2,500 workers. In 2019, the state of Massachusetts partnered with its maritime academy on a worker training initiative. Among its other workforce development platforms, a program for retraining fishermen to serve the offshore wind installations was unveiled, with an eye towards the Vineyard Wind project, with estimates of 3,500 jobs to be

New York offshore wind projects



NYSERDA

created. Down the coast in Virginia, Dominion Energy was negotiating with local unions, including electrical trades, for handling interconnections on the first phase of the offshore project, some 880 MW. One caution, however, came from OMSA, voicing concern that the earlier-mentioned hold on offshore oil and gas leasing might reduce the workforce to man vessels in the offshore service roles.

The horizon is bright, but not free of clouds. Some observers have cautioned that the "local content" efforts that have driven the states to invest will need to morph over time into more regional supply chains. In the race to develop hubs, there will invariably be big winners, but also losers, where large capital investments will fail to pay off. New strains of NIMBY-ism and opposition tied to new types of business arrangements are also adding some color. While turbines from the South Fork Wind Farm—a 132 MW project, one of several to be developed by Ørsted and regional utility Eversource—will not be visible offshore, a row has erupted in the wealthy Hamptons enclave of Wainscott, on Long Island's East End, over the underground routing of onshore electrical cables. To the north, in Connecticut, a dispute emerged in early 2020 between the City of New London and state authorities relating to the business arrangements, and property tax payments on the State Pier. Nearby, in New Bedford, Mass. (with a heavy-lift cargo terminal set to become a staging area for wind projects), local stakeholders are still striving for complementarity with the fishing industry.

Expert Advice: *New Ballast Water Guide*

By Tom Ewing

If you and your crew are facing questions about ballast water management (BWM) and related regulatory deadlines, it would be worth your while to download a new (January 2021) "Ballast Water Management Systems User Guide," an extensive, in-depth look at evaluating, selecting and installing a BWM system. The guide was published by MARAD and Glosten for the Ship Operations Cooperative Program (SOCP). It is geared primarily toward U.S.-flag operators in domestic and international trade.

As most mariners know, BWM, overseen federally by U.S. EPA and the Coast Guard, includes a number of activities. BWM can include treatment, reporting and recordkeeping and ballast exchange. Critically, discharge is transitioning to stricter controls, i.e., discharge needs to meet U.S. EPA water quality standards and compliance needs to be via the U.S. Coast Guard's so-called "type-approved" systems.

This topic is additionally timely now because in October 2020, USEPA published its proposed rule—"Vessel Incidental Discharge National Standards of Performance"—standards required by the 2018 Vessel Incidental Discharge Act (VIDA). As this is written, EPA's draft is still under agency review.

Importantly, EPA's draft retains existing discharge standards, set in previous iterations of water pollution policy.

EPA writes:

"The challenge in ballast water management…is not adopting a lower or more stringent standard, but instead focusing on the vessel installation of available and highly efficient BWMS. VIDA provides [an] opportunity to streamline the ballast water regulations which should aid with the operation of demonstrated, but not yet fully optimized, systems."

Note the reference to systems, i.e., to hardware available today.

Given this call for action, the new MARAD-Glosten guide is timely. At 85 pages, the guide is a substantive document, helpful from planning to training to compliance to maintenance.

The guide's electronic format really makes it more of a library, not just a singular book. It includes numerous internal and external links, to U.S. Coast Guard docs, for example, as well as IMO references and classification societies.

Even for readers new to this subject, the guide is approachable and straightforward in introducing complicated subjects and establishing pathways to move logically from one step to the next.

Alan Orthmann, PE, a marine engineer with Glosten, was the guide's project manager. "Start with the Guide Navigator," Orthmann advises. "Whether you are just starting out or you already have fleetwide ballast water treatment installations completed, but are trying to develop a more robust training program, the guide offers support across the spectrum of operators tasked with long-term compliance with ballast water regulations."

The guide provides detailed advice on selecting Coast Guard approved equipment and shipyard planning and subsequent requirements pertaining to compliance, monitoring and enforcement. A final section is called "BWMS Life Cycle" and deals with training programs and maintenance and repair.

The guide also addresses non-federal ballast program requirements. Five states, for example, have ballast water exchange requirements in addition to BW treatment. It's worth noting that the guide is cautionary about exchange requirements, writing that "exchange plus treatment presents the ship operator with significant logistics and safety issues."

Additionally, seven states have chlorine discharge standards. Finally, there are discharge-limited areas such as

national marine sanctuaries, national parks and other protected areas. The guide advises careful review (and provides a link to NOAA sanctuary maps) for any additional ballast water restrictions when operating in or near protected areas.

PROGRAM EXEMPTIONS

Today, most vessels are exempt from the most onerous or difficult ballast water management requirement, i.e., the need to install a Coast Guard type-approved treatment system. Exempted vessels can continue with current discharge practices.

A discharge exemption, though, does not mean exemption from other program requirements, particularly reporting and recordkeeping, really the major concerns today for most commercial vessels and operations within U.S. waterways and coastal areas.

Recordkeeping documents all aspects of onboard ballast water management, including treatment, unusual events or any exemptions or waivers. Reporting provides details to port authorities, including the U.S. Coast Guard, sometimes state authorities and the National Ballast Information Clearinghouse.

Current discharge standard exemptions are not without conditions. A vessel that operates exclusively on voyages between ports or places within a single COTP zone, for example, is exempt. The same vessel operating beyond those limits is not. EPA would exempt an unmanned nonseagoing barge but not if it is combined into an articulated tug and barge unit (ATB).

Caitlyn Stewart is vice president for regulatory affairs at The American Waterways Operators (AWO), which has been keeping a close eye on EPA's draft rules and overall

program implementation. She called the new MARAD guide "a comprehensive document for people who need to figure BWM out and then take appropriate steps."

Stewart said many businesses now are working to keep operations within allowable exemptions, to avoid moving into a regulatory space that still presents challenges.

New customers and operations, however, may require changes, demanding new vessels and operational scope, and making new demands on BWM compliance.

Another critical concern regarding current discharge exemptions is will they last? The Coast Guard is in charge of implementation, after EPA's standards are final. In 2012 the CG presented an implementation phase-in schedule based on vessel size and upcoming dry docking. That regulatory approach could happen again. The point is be ready for change.

In February, Glosten analyzed reports sent to EPA's eNOI (electronic Notice-Of-Intent) water-discharge database. In 2020, 4,714 vessels within the U.S. EEZ (exclusive economic zone, 200 nautical miles off U.S. shores) reported discharging ballast in U.S. waters. Of those vessels, just 179 (4%) reported having an installed treatment system.

Orthmann, with Glosten, commented that "this data tells us 1) that there are a lot of vessels that need to understand ballast water reporting and recordkeeping requirements, and 2) there are thousands of vessels discharging in U.S. waters that are still working on a solution for BWM, including treatment."

Orthmann said the new guide would be particularly useful for:

- *Coastal tug and barge transport, including unmanned barges;*
- *Cruise ships and ferries operating beyond the confines of a single COTP zone;*
- *Feeder ships serving larger shipping ports;*
- *Offshore wind SOVs (surface operations vessels); and,*
- *Heavy lift vessels and marine construction vessels operating in multiple regions.*

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WHAT THE FUTURE HOLDS

Unfortunately, to a very real extent, ballast water regs are a perpetual work in progress.

One major unknown is to what extent a final rule will match the proposed rule, which has drawn considerable push-back. Consider comments, for example, from New York State's Environmental Protection Bureau:

"We oppose EPA's elimination of the 2013 VGP (vessel general permit) regulation of vessels operating exclusively on the Great Lakes ("lakers"). We object to the EPA's elimination of standards for lakers, and in fact maintain that all lakers…should be subject to meeting protective standards. Lakers are the most important ballast mediated pathway of secondary aquatic invasive species spread in the Great Lakes."

Similarly, Michigan's Governor, Gretchen Whitmer, in a letter to EPA, copies text (or vice versa) from New York's letter regarding exemptions for Lakers. She writes further that EPA's technology requirements are not as strict as Michigan's.

Washington Governor Jay Inslee, in a 62-page document, calls the draft a "reckless proposal," unable to "protect our waters against pollution and the spread of aquatic nuisance species."

Some businesses, too, want greater clarification and certainty. Canal Barge, for example, based in Louisiana, wants EPA to exempt all unmanned barges from BW regs, regardless if they are part of a tug-barge combination. CB also suggests a shift from a COTP zone to a "common waters basis," arguing that a "common waters" delineation more accurately reflects ballast water problems.

The American River Transportation Company (ARTCO) asked EPA to ensure the exclusion from ballast tank requirements for vessels when discharge ballast water is taken on from public water utilities or commercial sources.

Again, these are just a fraction of the number and range of concerns that EPA has to consider and balance before finalizing its VIDA proposal.

It's also critical to note that the EPA making decisions now about a final rule is not exactly the same as the agency that proposed the rule. EPA leadership and priorities have changed and it remains to be seen how the new top-level management will impact final decisions. Stricter discharge standards would require reassessment of the Coast Guard's type-approved technologies. A move to expand federal-state coordination would delay final approval. EPA could further limit vessel exemptions, forcing a big shift in businesses' operational plans that seek to stay within safe harbors, so to speak.

Finally, the VIDA rule may be re-evaluated by the White House Office of Management and Budget. President Biden's Executive Order 13990 required agencies to forward for OMB review lists of regulations that might not align with the new Administration's priorities. No comment from EPA (by deadline) if the draft VIDA was included on the Administrator's list to OMB. If it were, this whole topic could be recast.

Tech
File

Winning the Next Event

How racing tech will set up U.S. offshore vessel operators for success

By John Cooper, CEO, BAR Technologies

It's no secret that the U.S. offshore wind sector is finally about to burst into action after years of behind-the-scenes movement. With a new administration set to bolster the favorable political headwinds for the sector, establishing a strong domestic supply chain will be critical as the industry scales up.

Offshore wind farm operators will need high-quality vessels ready to go, and crew transfer vessels (CTV) are vital when constructing and servicing new assets. Concurrently, the sector also has a once-in-a-generation opportunity to lay a strong foundation for future decarbonization, adopting next-generation CTVs as a matter of course.

BAR Technologies

Large operators and OEMs in Europe are increasingly scrutinizing the emissions of vessels in the offshore wind maritime supply chain, a trend expected to proliferate globally as the world reaches consensus on net-zero 2050. President Biden has previously spoken about making U.S. electricity production carbon-free by 2035, and the rapidly expanding U.S. offshore wind industry must ensure it isn't caught off guard by short-term decision making in the next five years.

Ultimately, reducing emissions comes down to efficiency. Whether that is through reducing fuel requirements for conventional drivetrains, or enabling the transition to electric-hybrid propulsion by getting the most for a given energy quantum through having a more efficient hull, operators will need access to vessel designs which are optimized for energy use.

BAR Technologies has its roots in Formula One racing and the America's Cup, where high-end simulation tools and AI design optimization are used to take every millisecond off finishing times. Workboats and CTVs might be somewhat different in terms of the required operational profiles, but a solid understanding of the latest hydrodynamics and foil assist technologies can be used to boost efficiency to new levels. Drawing on this heritage, BAR Technologies has patented its own invention, the Foil Optimized Stability System (FOSS).

What goes into designing a low-emissions U.S. CTV?

Offshore wind farm operators in the Atlantic face significant logistical challenges when servicing their assets. CTVs designed for the U.S. must be capable of operating in higher sea states than in many established European markets. The trend for building U.S. wind farms further out to sea also demands high efficiency to keep costs down.

The cornerstone of any vessel design is a hull form optimized for real-world operations. A particular consideration for offshore wind vessel operators in the U.S. is ensuring comfort for technicians in wave swells of up to 2.5 meters. The BARTech 30 CTV, which has already been priced at leading shipyards on the East Coast and in the South, makes use of an innovative slender main hull with a swath style outrigger, in contrast to the traditional catamaran.

This hull form, together with BAR Technologies' FOSS, delivers significantly reduced vertical acceleration, long a priority for CTV operators. CTVs travel at high speeds, and, in rough seas, industrial personnel such as wind technicians can become seasick, ultimately having reduced effectiveness upon arrival. Maintaining a steady course reduces this, and also boosts the efficiency of the vessel. But, crucially, it ensures safe vessel operability in a wider range of sea conditions, allowing wind farms to be serviced for longer periods of the year.

Adapting foil technology for offshore wind vessels

In the America's Cup, hydrofoil technology is used to lift racing yacht hulls out of the water entirely when the vessel is in motion, reducing drag significantly. Fully foiling CTV designs might one day enable the next wave of efficiency. However, the most effective solution for the present requirements of offshore wind vessel operators is the development of the FOSS.

FOSS consists of a foil array which can either be retrofitted onto existing vessels, or integrated onto new builds. On the BARTech 30, the FOSS is used to further improve efficiency, as the foils can take 30% of the displacement of the vessel, increasing high speed maneuverability. Vitally, this configuration also reduces fuel burn, and therefore CO2 emissions, by 30%.

FOSS can also be added to existing vessel designs to enhance maneuverability and seakeeping. For example, U.K.-based operator Seacat Services has ordered the popular Chartwell 24 model with the addition of BAR Technologies' FOSS. As U.S. operators look to build out versatile fleets, it is likely that the new wave of vessels will share this core characteristic to maximize operational flexibility.

Finally, to get America's CTV fleet on the water, innovative designs must first progress through regulatory approval from the class societies such as the American Bureau of Shipping. This is a vital step in ensuring that US operators can place orders for the designs which best suit their operational needs from shipyards across the country.

This is especially important where designs deviate from established convention. With foiling designs, for example, it was necessary to prove the robustness of components in the context of operating around a wind farm, where collisions may sometimes occur during transfer maneuvers in high sea states. BAR Technologies worked closely with ABS and achieved AIP in 2020.

The race to net-zero

The U.S. offshore wind industry is brimming with potential. But it can't afford to lose sight of the end goal: clean, reliable, affordable energy for the rest of the century. Decisions made now on vessel procurement will underpin the future credibility—and profitability—of the sector. Wind farm operators will want to know that they are building a future-proof fleet. By acting decisively now to ingrain the highest standards into the maritime supply chain from the outset, they can be confident that the U.S. in 2050 will have the offshore wind sector that it needs.

Tech
File

Is Hands-free Bluetooth Communication Technology Right for Your Vessel?

By Chris Clarke, Industrial Communications Consultant, Sena Industrial

There are several inherent issues with using handheld two-way marine VHF radios for marine communication. Having to push a button to talk means you cannot use that hand for important work activities, like winching a line. Waiting to push the button can waste valuable seconds when a crewmate needs help or your vessel is about to hit the dock. Handheld radios also usually have a decent amount of static and feedback, making them neither a fast nor reliable means of communication.

Many seafarers are looking for different solutions, and new long-range Bluetooth technology is changing the way mariners communicate on board. Using wireless headsets, Bluetooth-enabled intercoms offer instant, full-duplex, high-definition communication for various marine applications. Benefits include real-time, crystal-clear communication; advanced noise canceling; increased weather resistance; hands-free designs; and enhanced connectivity (phones/GPS). Instead of relying on the old "push to talk" mechanics of walkie-talkies, Bluetooth technology can pair or link headsets for instant, real-time communication. With no button to push, hands are left free for other tasks. Rather than the half-duplex communication of handheld radios, full-duplex Bluetooth technology allows communication in both directions simultaneously for enhanced safety. You can also talk calmly into the mic instead of having to yell into a radio.

Improved productivity and safetyhas many marine operators considering the adoption of Bluetooth technology aboard their vessels. However, while its benefits are numerous, this technology is not right for everyone. Here are the main things to consider to help determine if Bluetooth-enabled communication is right for you:

Sena Industrial

Vessel size and construction - Bluetooth-enabled and similar Mesh-enabled headsets typically work out to a range of about a half mile. If your working area is much bigger than that, then stick with VHF radios, as these have longer range. The hull and material of large metal ships can also interfere with Bluetooth connections, which operate at around 2.4 GHz frequency. Teams working on larger vessels should stick to VHF radios, which operate at lower FM frequencies around 155 MHz and perform better in these environments, especially if workers plan on communicating from different levels of the ship.

Ambient noise - Since well-designed Bluetooth headsets offer advanced noise cancelling capabilities, they can significantly reduce the effects of ambient noise during intercom conversations. This is valuable around noisy engines, in stormy weather, and next to noisy equipment. Headsets are available with over-the-ear cups that minimize ambient noise while providing workplace hearing protection.

Number of workers - Bluetooth technology can connect up to four headsets for easy group communication. If your team that needs to communicate over the intercom is larger, you will need a different option or potentially adapt separate intercoms for different sections of your team. Mesh networks can host a virtually limitless number of users, making Mesh headsets a good choice for larger teams.

Other devices - One additional advantage when operating over a Bluetooth network is that you can connect your headset to your mobile phone, GPS or other Bluetooth enabled device, enabling these technologies to be used while remaining hands-free. But, if there are many other Bluetooth devices within range that are sending out signals, they may interfere with your intercom connection.

Special features - Beyond their standard capabilities, certain Bluetooth headsets also come with additional features for enhanced usability. These may include voice prompts and advanced connection capabilities with outside intercoms.

Tech
File

Data-driven Ballast Water Analytics

Ballast water treatment systems (BWTS) manufacturer Hyde Marine earlier this year launched the Hyde GUARDIAN Data Log Analysis Utility (DLAU) as a part of its suite of aftermarket services. Said to be the industry's first data-driven analytics platform, the cloud-based, IoT solution empowers recurring Hyde GUARDIAN BWTS health monitoring, standardized performance reporting and options for enhanced, fleet-wide environmental compliance management.

Hyde Marine

"DLAU originally started as tool developed for use by our in-house technical support team to better and more consistently process and analyze customer BWTS data," said Chris Todd, executive director, Calgon Carbon UV Technologies, Hyde Marine. "As the project materialized, we began to see that the potential for this application was much bigger than our original project vision. We realized that what was good for us regarding BWTS data analysis was also good for the customer."

Todd said DLAU solves key BWTS performance tracking and health monitoring issues stemming from inconsistent operations feedback and manual data analysis. "Historically, BWTS health has always only ever been maintained retroactively, as in something breaks and we then fix it. It was always a race to try to get ahead of field issues as they arise," he said. "DLAU establishes a portal whereby customers may quickly feed BWTS data back to us and this data is then automatically organized and processed for review by both the customer and Hyde Marine staff. Now we are easily able to stay ahead of BWTS issues before potentially consequential errors or system faults arise and can deploy corrective action and guidance proactively instead of reactively."

"From integrated remote access technology to indicative compliance testing to BWTS operational simulation to automated data analytics and performance reporting, these technical solutions provide vessels with the resources they need to achieve peak performance with respect to ballast water regulations," Todd said.

The cloud-based data analytics and data warehousing solution is built upon a three-tier ETL architecture. Various programming languages are utilized to best process the BWTS data, these including VBA, Python, and SQL primarily, Todd said. It is offered as free service during the GUARDIAN BWTS's inherent warranty period and then available via subscription through one of the manufacturer's technology and support plans.

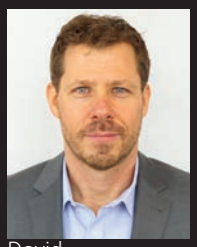
People & Companies


Wilkinson


Cuccias


Wille


Turrell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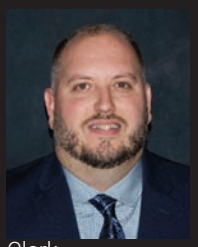
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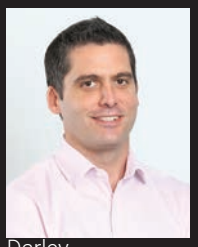
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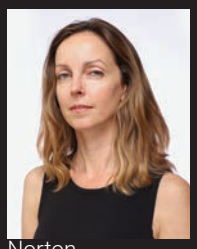
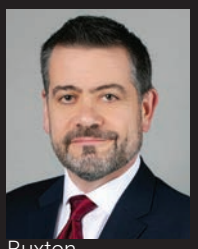

Norton


Frisher


Buxton


Ryder


Stott


Whitworth


Bucci


MacArthur

Wilkinson Named Ingalls President

America's largest military shipbuilder Huntington Ingalls Industries named Kari Wilkinson to serve as executive vice president of HII and president of HII's Ingalls Shipbuilding division, effective April 1. She succeeds Brian Cuccias, who will retire.

Bouchard CEO Ordered to Step Down

A bankruptcy judge in Houston has ordered Morton S. Bouchard, III, fourth generation leader of family-owned Bouchard Transportation, to step down from his role as CEO as the Long Island-based tug and barge operator continues to navigate through bankruptcy and legal challenges.

Wille Named President of All American Marine

Bellingham, Wash. shipbuilder All American Marine (AAM) has promoted Ron Wille to the role of president.

Tidewater Promotes Two Execs

Offshore support vessel company Tidewater promoted two members of its executive team, Sam Rubio and David Darling, to the positions of chief financial officer and chief operating officer, respectively.

NTSB Names Director for Office of Marine Safety

Longtime mariner and investigator Morgan Turrell was named director of the National Transportation Safety Board's

(NTSB) Office of Marine Safety effective March 1.

Sea Machines Hires David as CCO

Sea Machines Robotics, developer of autonomous command and control systems for commercial vessels, has hired Moran David as chief commercial officer (CCO).

Callan Marine Names Harner COO

Dredging contractor Callan Marine hired Greg L. Harner as its new chief operating officer.

Fairbanks Morse Names Clark COO

Engines manufacturer Fairbanks Morse has named Michael Clark its new chief operating officer.

Crowley Promotes Warner to CFO

Crowley Maritime Corporation promoted senior executive Dan Warner to chief financial officer.

Thordon Promotes Groves to VP

Thordon Bearings promoted Scott Groves to vice president of sales effective March 11.

LR Appoints Three Execs

Lloyd's Register named Mark Darley as business director, marine and offshore; Andy McKeran as business director, maritime performance services and Philippa Charlton as chief marketing officer.

Navico Hires Norton in New Post

Navico, parent company to the Lowrance, Simrad Yachting, B&G and C-MAP brands, hired Tara Norton as its first-ever chief sustainability officer.

Frisher Joins Alabama State Port Authority

Beth Ann Frisher joined the Alabama State Port Authority senior management team chief commercial officer effective February 18.

Vard Marine VP Kendrick Retires

Naval architecture and marine engineering firm Vard Marine announced Derek Buxton, current vice president business development, has taken on the additional duties as vice president for the company's regional office in Ottawa effective immediately, following Andrew Kendrick's retirement from the company.

Austal USA Promotes Ryder

Shipbuilder Austal USA named long-time business development executive Larry Ryder as the company's new vice president of business development and external affairs.

Stott Joins SAFE Boats

SAFE Boats International has hired Mark Stott as business development director for the U.S. western region for government customers and private/commercial customers worldwide.

Whitworth Joins Gulf Copper Board

Gulf Copper and Manufacturing Corporation has appointed Jonathan Whitworth as a member of its board of directors.

Torqeedo Hires Bucci

Torqeedo, Inc. appointed marine industry sales executive Patrick Bucci as senior director for business development for its electric and hybrid propulsion systems.

MacArthur Helms MMA Training Ship

Maine Maritime Academy has hired alumnus Capt. Gordon "Mac" MacArthur to serve as master aboard the training ship State of Maine.

Janice Ann Reinauer

Senesco Marine

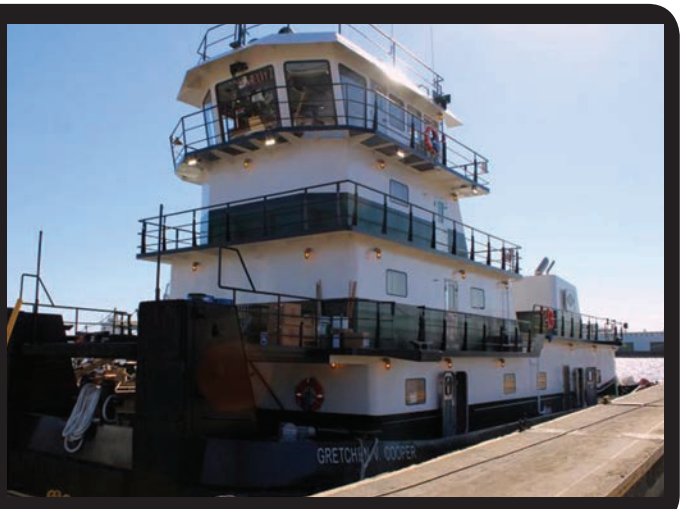
North Kingstown, R.I. shipbuilder Senesco Marine has built and delivered another EPA Tier 4 compliant tug, Janice Ann Reinauer, to Reinauer Transportation. Upon delivery, the tug went directly to work transporting product on the U.S East and Gulf Coasts.

The 4,200-horsepower vessel was designed by Ocean Tug & Barge in close cooperation with The Reinauer operations team and is the 13th tug Senesco has built for Reinauer. The tug was designed to operate as an articulated tug-barge unit (ATB) with an Intercon coupling system.

The tug's main propulsion system consists of two GE 6L250, EPA Tier 4 diesel engines, Lufkin reduction gears and Nautican Integrated Propulsion Units including high efficiency nozzles, triple rudders, pre-swirl stators and propellers. The electrical power plant consists of John Deere ship's service generators including an emergency back-up generator.

Gretchen V. Cooper

The U.S.' first linehaul towing vessel powered by Tier 4 Caterpillar high-speed engines with selective catalytic reduction (SCR) was built by Blakeley BoatWorks (BBW) and is now operated by Cooper Marine and Timberlands (CMT).



In March, Blakeley BoatWorks completed construction of M/V Gretchen V. Cooper, a state-of-the-art, Tier-4 inland linehaul tow boat. This 3,400-horsepower vessel is 110-feet long, 33-feet wide, and expands CMT's fleet to 20 vessels.

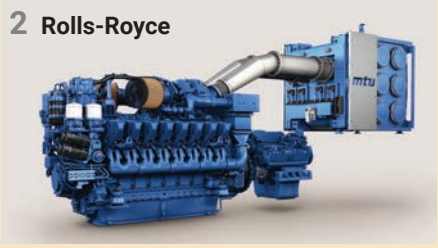
The Gretchen V. Cooper is powered by two Caterpillar C3512E 3,400 HP Tier IV diesel marine engines operating at 1,800 RPM and coupled to Twin Disc MGX5600 gears. Thompson Caterpillar also supplied electrical power with two Caterpillar C4.4 Tier III generators with RW Fernstrum, Inc. keel coolers throughout.

A pair of Southeastern Propeller 88" x 74' x 9" four-blade stainless steel propellers provide thrust through two J & S Machine Works, Inc. 9" ABS Grade two propeller shafts with Cutlass shaft bearings, Thordon rudder bearings, and Kemel shaft seals. Gulf Coast Air and Hydraulics supplied the steering system for the two 9" main and four 8" flanking rudders.

Products

1 Fincantieri

2 Rolls-Royce



3 CAIG

4 KVH

6 ABS

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5 Survitec

1. SOLID 156HS - Intelligent Data Center

Condition Monitoring by Fincantieri Marine Services North America offers an integrated approach to data collection, communication, projections and analysis. The SOLID combines a monitor, data logger, powerful analysis software and radio (LTE & SAT), all in one compact unit. It is the latest technology designed to meet the most demanding requirements for monitoring and direct data analysis of complex thermodynamic systems.

2. mtu EPA Tier 4 Engines

Rolls-Royce received U.S. EPA Tier 4 certification for its mtu propulsion systems based on its Series 4000 M65L 16-cylinder diesel engines. The mtu propulsion system, which includes the engines and SCR exhaust aftertreatment, has been put to use during test bench runs and around 10,000 hours of operation in ferries and tugs operated in the U.S. by Foss Maritime and the San Francisco Water Emergency Transportation Authority (WETA).

3. DeoxIT L27 Mechanical & Electrical Marine Greases

CAIG Laboratories' DeoxIT L27 Marine Mechanical and Electrical Greases are engineered for the lubrication and protecting metal surfaces, and they also contain special additives which remove and displace most surface oxidation and corrosion on metals. Manufactured in semi-solid form for use as a combination cleaning, deoxidizing, protecting and lubricating preparation, the greases protect against oxidation (galvanic corrosion) and are free of mineral acids, sulphurs, alkalis and other noxious components aggressive to metals.

4. TracPhone V30 Marine VSAT Antenna

KVH Industries, Inc., introduced the TracPhone V30, an ultra-compact Ku-band VSAT antenna designed to deliver data speeds as fast as 6 Mbps down/2 Mbps up for leisure and commercial boats wanting to experience the benefits of internet at sea. Measuring 14.5 inches diameter and weighing 23.4 lbs, the TracPhone V30 is designed to provide ease of installation and retrofit with a single power-data coax cable, versus multiple cables, and to utilize DC power.

5. EXOLOK

Survitec brand Crewsaver has launched EXOLOK, a new cylinder locking systemproviding increased security for gas cylinders attached to lifejackets. The system removes any potential for a gas cylinder to work loose within a lifejacket. Users can perform a quick visual check to see that all is well, making sure their gas cylinder is correctly threaded with a glance to see that two arrows line-up.

6. ABS Emissions Reporting Tool

Classification society ABS launched a new digital emissions monitoring tool that allows vessel owners and operators to input and monitor their IMO Data Collection System (DCS) and EU Monitoring Reporting and Verification (MRV) review process. The ABS Emissions Reporter application tracks the status of the verification process and, once the data has been verified by ABS engineering, makes it simple to export the results and submit to the appropriate organization.

Marine News 2021 Editorial Calendar

January 2021

Passenger Vessels

- Dredging
- Electric & Hybrid Vessels & Propulsion
- Health, Safety & Sanitization
- MaritimeEquipment.com Safety & Sanitization Resource Guide

Event Distribution:

PVA Maritrends:
Feb 6-9, Portland, OR

E-Magazine Edition: Offshore Wind Workboats

March 2021

Pushboats, Tugs & Barges

- Maritime Training & Education: Classroom, Simulation, Online
- Shipbuilding Report
- Coatings & Corrosion Control
- Spotlight: Q1 Inland Waterways Report
- MaritimeEquipment.com Coatings Resource Guide

Event Distribution:

AWO Spring Convention
Apr 13-15 Washington, DC
NACE Corrosion
Apr 18-21 Salt Lake City, UT

April 2021

Offshore Energy

- Water Treatment
- Marine Cranes
- Ship Autonomy / AI
- Marine Electronics: Communication & Controls
- MaritimeEquipment.com Water Treatment Resource Guide

Event Distribution:

CMA Shipping 2021
May 2021 - Stamford, CT

May 2021

Dredging

- Barges
- Material Handling Equipment
- Rope & Cordage
- Spotlight: Q2 Inland Waterways Report
- MaritimeEquipment.com Material Handling Resource Guide

Event Distribution:

Inland Marine Expo
June 2021 - St. Louis, MO
Seawork
June 15 - 17 - Southampton, UK

June 2021

Combat & Patrol Craft

- Multi-mission Workboats
- Patrol Craft Propulsion : Inboard, Outboard and Water Jets
- Marine Lighting
- Workboat Communications
- MaritimeEquipment.com Marine Lighting Resource Guide

July 2021

Propulsion Technology

- Autonomous Vessels
- Workboat Engines
- Fuels & Lubricants
- Workboat Conversion
- MaritimeEquipment.com Marine Propulsion Resource Guide

Event Distribution:

Clean Waterways
September 13-15 - Louisville, KY

E-Magazine Edition: Inland Waterways: Operations, Expansion & Dredging

September 2021

Shipbuilding & Repair

- Naval Architecture
- Shipyard Tools & Equipment
- HVAC and Ventilation
- Q3 Inland Waterways Report
- MaritimeEquipment.com Shipyard Resource Guide

Event Distribution:

SNAME Expo
October 2021 - Houston, TX

October 2021

MN100

- Offshore Wind
- Pipes, Pumps and Valves
- Maritime Training
- MaritimeEquipment.com Pipes, Pumps and Valves Resource Guide

Event Distribution:

SHIPPING Insight
October 2021 Stamford, CT, USA

November 2021

Great Workboats of 2021

- Tugs and Push Boats
- Power & Propulsion
- Deck Machinery
- Spotlight: Q4 Inland Waterways Report
- MaritimeEquipment.com Deck Machinery Resource Guide

Event Distribution:

Clean Gulf: December 2021
Workboat Show: December 2021

E-Magazine Edition: Patrol, Escort & Fast Craft Operations

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VESSELS FOR SALE / BARGES FOR RENT

NEW PRODUCTS

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NEW PRODUCTS

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NEW PRODUCTS

PROFESSIONALS

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13	David Clark Company	www.davidclark.com	(508) 751-5888
15	DMW Marine Group, LLC	www.dmwmarinegroup.com	(610) 827-2032
29	Environmental Marine, Inc.	www.envmar.com	(606) 561-4697
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Maritime Reporter & Engineering News	59,804
World Energy News	45,916

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