OE OFFSHORE ENGINEER

THE FUTURE OF OFFSHORE ENERGY & TECHNOLOGY

JULY/AUGUST 2025 | OEDIGITAL.COM | VOL. 50, NO. 4

ROBOTICS

Patrolling Offshore Structures

Science
Understanding Deep Currents

Argentina
LNG Ambitions

Digitalization
OpenTug & Real-Time Visibility on Barge Cargo

REIMAGINE THE FUTURE OF DATA CENTERS WITH ABS

The world's digital transformation is accelerating, and so is the demand for energy-hungry data centers. What if the answer to powering tomorrow's AI and cloud computing revolution lies offshore, harnessing the potential of nuclear energy?

Dive into our groundbreaking new publication, ***Pathways to a Low Carbon Future: Floating Nuclear Power Data Center***, created in collaboration with Herbert Engineering. Discover how floating data centers powered by small modular reactors (SMRs) can unlock new levels of sustainability, resilience and efficiency while easing the burden on local grids.

Inside, you'll find comprehensive guidance on the technological feasibility of offshore, nuclear-powered data centers, along with innovative design strategies focused on heat and energy management, structural integrity and safety. Additionally, this publication offers valuable insights poised to shape the next generation of digital infrastructure and influence future industry standards.

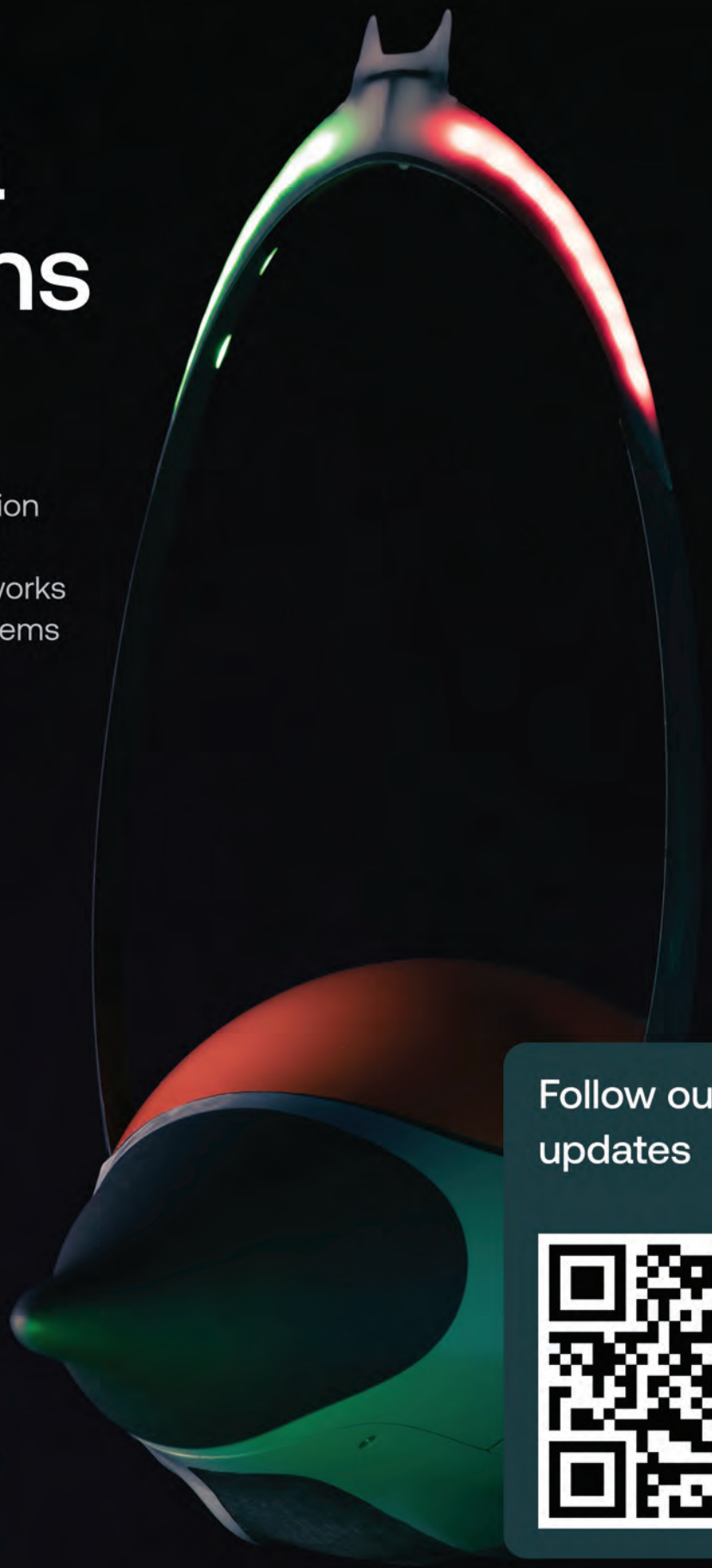
To learn more and collaborate with ABS on offshore data center projects, contact our team at **globaloffshore@eagle.org**.

Download your FREE copy today!

Click Here

Smart Subsea Solutions

- intelligent vehicles
- reliable communication
- accurate positioning
- modern sensor networks
- diver navigation systems



Follow our updates

Evo Logics

evologics.com/newsletter

JULY/AUGUST 2025
WWW.OEDIGITAL.COM
VOL. 50 / NO. 4

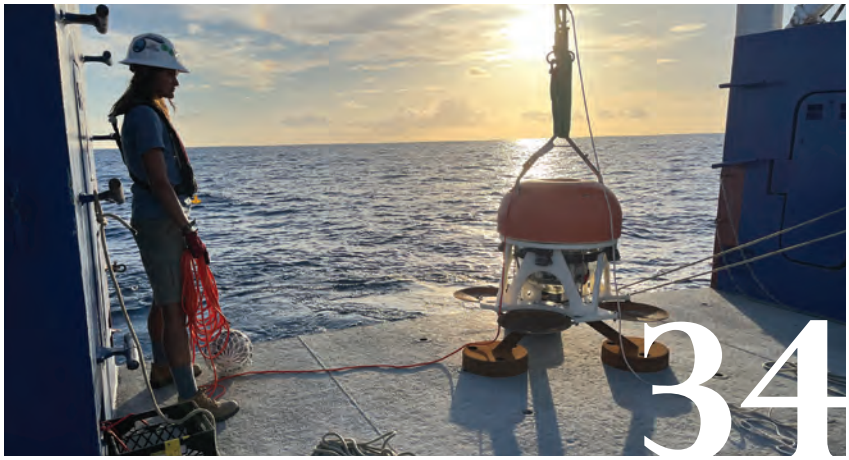
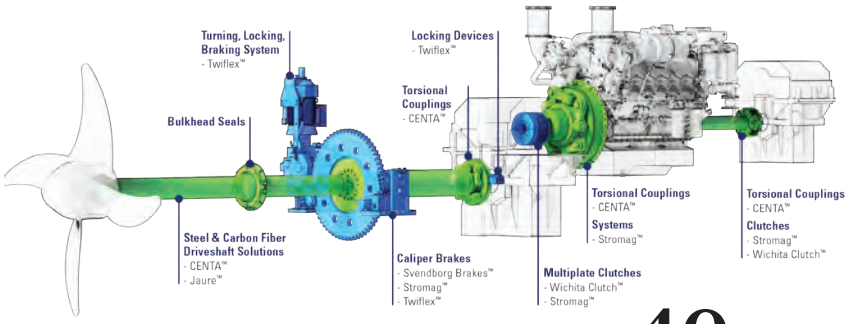


Photo this page [top to bottom] courtesy Equinor; Taurob; University of Rhode Island; Cover photo courtesy ANYbotics

© YPF



© Regal Rexnord

© SBM Offshore/Ambipar

© SPE Offshore Europe

DEPARTMENTS

President Donald Trump was enroute to Alaska to meet with Russian President Vladimir Putin as this edition of *Offshore Engineer* was shutting down, and regardless the outcome oil and gas markets will react in kind. Regardless the short-term bump, the path for oil and gas remains solid for the coming years, and of particular interest was recent news that Exxon Mobil could invest as much as $21.7B in Trinidad and Tobago, tabbing it possibly as 'the next Guyana'.

Looking [further] south, **Melissa Lucio, Welligence Energy Analytics,** in this edition analyzes the development of the Vaca Muerta which has allowed Argentina to start fulfilling its potential as an energy exporter. The country already exports oil and some piped gas, but as the exploitation of Vaca Muerta accelerates, the opportunity to establish itself permanently as a player on the global LNG market arises. YPF plans to construct four newbuild FLNG units with capacities of at least 5 MMtpa – the largest ever built – potentially a massive challenge if for no other reason securing dock space for the construction.

Technical editor **Wendy Laursen** again takes a deep dive inside the use of robotics offshore, in her article *"Patrolling Robots Take Their Next Steps Offshore"* starting on page 26. Both the digitalization and automation trends continue to significantly drive tech development in the offshore sector, in the name of safety and efficiency, and as patrolling robots have proven their worth onshore, confidence grows in their performance offshore.

Staying on the tech watch, we met with OpenTug founder and CEO **Jason Aristides** recently to discuss the evolution of OpenTug's BargeOS. While at first glance this might seem better suited for one of our maritime titles, this story and OE TV interview is highly relevant for the offshore energy sector, as those moving millions of gallons of products on the inland and coastal waterways currently don't have the real-time visibility and predictive intelligence that is more common on the deep sea shipping side of the business.

Check out the 2025 Media Kit via the QR Code Below

Gregory R. Trauthwein
Editor & Publisher
trauthwein@offshore-engineer.com
m: +1-516.810.7405

OE OFFSHORE ENGINEER
THE FUTURE OF OFFSHORE ENERGY & TECHNOLOGY.

Vol. 50 *No. 4*
ISSN 0305-876x *USPS# 017-058*

118 East 25th Street,
New York, NY 10010
tel: (212) 477-6700; fax: (212) 254-6271
www.OEDigital.com

EDITORIAL
GREGORY R. TRAUTHWEIN
Editor & Publisher

AMIR GARANOVIC
Managing Editor
garanovic@offshore-engineer.com

Contributors
BARRY PARKER, New York
WENDY LAURSEN, Australia
PHILIP LEWIS, U.K.

PRODUCTION | GRAPHIC DESIGN
NICOLE VENTIMIGLIA
nicole@marinelink.com

SALES
TERRY BREESE, VP Sales
+1 (561) 732-1185 | breese@marinelink.com

JOHN CAGNI
cagni@marinelink.com | +1 631-472-2715

FRANK COVELLA
covella@marinelink.com | +1 561-732-1659

MIKE KOZLOWSKI
kozlowski@marinelink.com | +1 561-733-2477

GARY LEWIS, Panama
(516) 441-7258 | lewis@offshore-engineer.com

CORPORATE STAFF
CEO
JOHN O'MALLEY
jomalley@marinelink.com

President
GREGORY R. TRAUTHWEIN
trauthwein@offshore-engineer.com

IT Director
VLADIMIR BIBIK

Public Relations
MARK O'MALLEY
momalley@marinelink.com

Accounting
ESTHER ROTHENBERGER
rothenberger@marinelink.com

Circulation
KATHLEEN HICKEY
k.hickey@marinelink.com

SUBSCRIPTION
To subscribe please visit:
www.OEDigital.com

Email: oecirc@offshore-engineer.com
Web: www.OEDigital.com
t: (212) 477-6700

INTELATUS
GLOBAL PARTNERS

NAVIGATING THE FUTURE OF FLOATING WIND:

COMPREHENSIVE MARKET FORECAST

Unlock the future of floating wind with Intelatus Global Partners' 294-page market forecast. Gain unparalleled insights into vessel designs, regional trends, and investment opportunities.

- Over 290 pages of expert analysis
- More than 200 charts, graphs, and exhibits
- Profiles of key technology drivers and vessel designs
- Regional market dynamics and growth projections

This report is an essential tool for strategic planning and staying ahead in this dynamic industry. Contact us today to get your complimentary report overview!

To learn more contact us at:

+1 202 964 0447
info@intelatus.com

www.intelatus.com

OE WRITERS

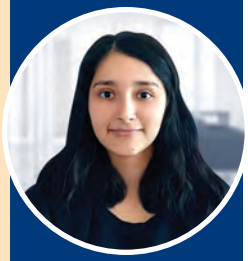

Aliuddin


Geipel


Laursen


Lennon


Lewis


Lucio


Milito

Based in Houston, Texas, **Atif Aliuddin** leads global product strategy for Single Shaft Compressors at Siemens Energy, driving technology development, cost competitiveness, and market growth.

Philipp Geipel has more than 15 years' experience in Gas Turbines Research and Development. After finishing his PhD at Imperial College in London, UK he has joined the team in Sweden focusing on the medium size gas turbines of Siemens Energy.

Wendy Laursen has 20 years of experience as a journalist. In that time, she has written news and features for a range of maritime, engineering and science publications. She has completed a Master of Science research degree in marine ecology as well as diplomas in journalism, communication and subediting.

Bob Lennon, Marine Industry Manager at Regal Rexnord, has more than 40 years of industry experience. He has expertise in flexible couplings, carbon fiber shafting, and torsional vibration.

Philip Lewis is Director Research at Intelatus Global Partners. He has extensive market analysis and strategic planning experience in the global energy, maritime and offshore oil and gas sectors. Intelatus Global Partners has been formed from the merger of International Maritime Associates and World Energy Reports.

Melissa Lucio is a Latin America Analyst at Welligence Energy Analytics, based in Houston. She covers upstream activity in Argentina, the Falkland Islands, and Uruguay. She holds a Bachelor's in Economics from Stanford University. Prior to joining Welligence, she worked in LNG research, focused on North American markets.

Erik Milito is the president of the National Ocean Industries Association (NOIA), representing the interests of the offshore oil, gas, wind, carbon capture, and ocean mineral industries.

Jan van Smirren is the Technical Coordinator of the National Academies of Sciences, Engineering, and Medicine's Understanding Gulf Ocean Systems initiative. With over 40 years of experience in oceanography, van Smirren is currently an oceanographer with Ocean Sierra and DHI Water and Environment. Prior to this he was Partnership Managing Director for the Energy Sector at BMT, and previously occupied global and regional senior management positions in the UK, Singapore and USA with Fugro.

تحت رعاية صاحب السمو الشيخ محمد بن زايد آل نهيان، رئيس دولة الامارات العربية المتحدة

Under the patronage of His Highness Sheikh Mohamed Bin Zayed Al Nahyan, President of the United Arab Emirates

أديبك ADIPEC

Host

أدنوك ADNOC

3-6 November 2025
Abu Dhabi, UAE

CONNECTING MINDS. TRANSFORMING ENERGY.

Join global energy leaders to shape the future of energy

205,000+
Exhibition attendees

16,500+
Conference delegates

2,250+
Exhibiting companies

1,800+
Conference speakers

54
NOCs, IOCs, NECs & IECs

10
Conferences

adipec.com

BOOK YOUR STAND

REGISTER AS A VISITOR

Supported by

زارة الطاقة والبنية التحتية
MINISTRY OF ENERGY & INFRASTRUCTUR

وزارة الصناعة والتكنولوجيا المتقدمة
MINISTRY OF INDUSTRY & ADVANCED TECHNOLOG

غرفة أبوظبي
ABU DHABI CHAMBER

مصدر
MASDAR

دائرة الثقافة والسياحة
DEPARTMENT OF CULTURE AND TOURISM

دائرة التعليم والمعرفة
DEPARTMENT OF EDUCATION AND KNOWLEDGE

Host city — Abu Dhabi

Venue partner — adnec centre abu dhabi

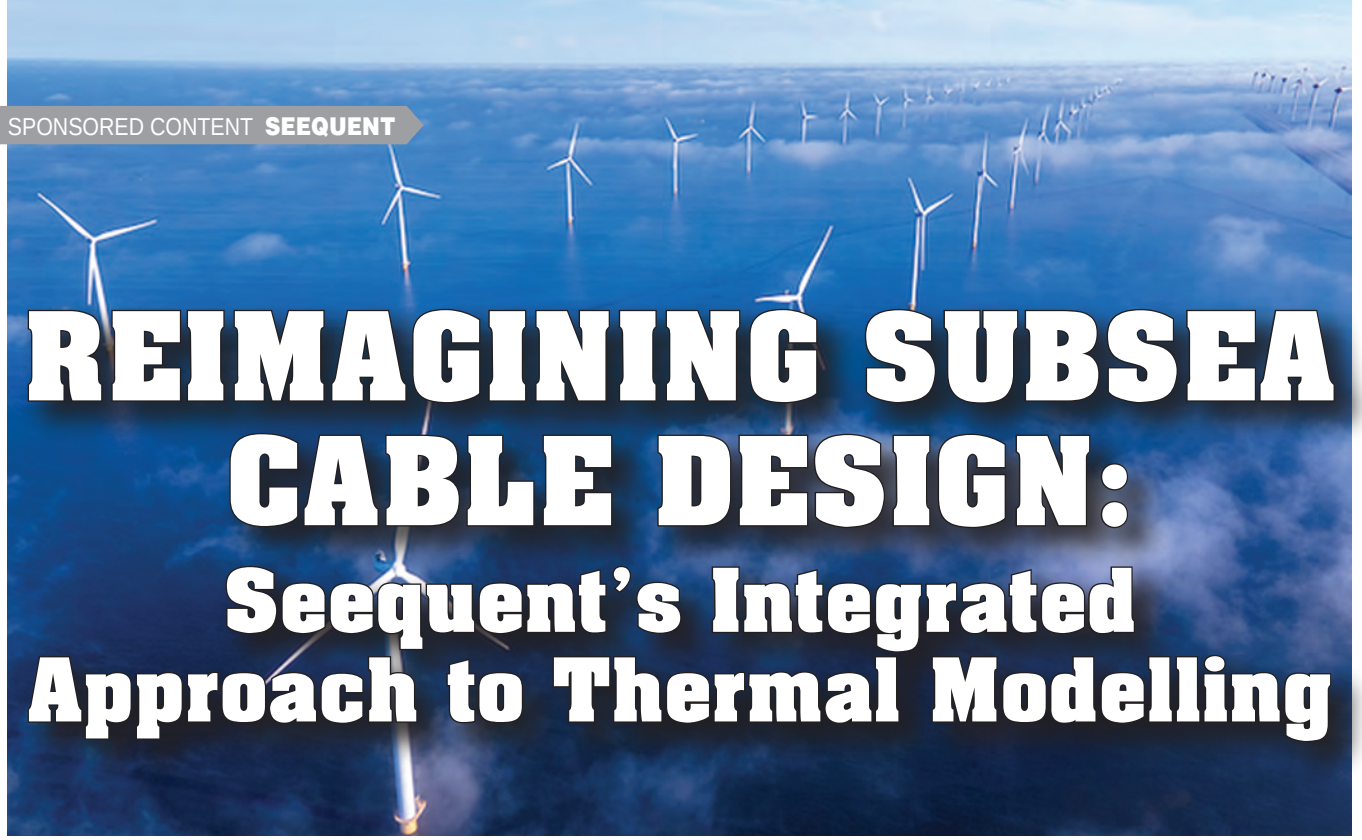
Sport & recreation partner — Zayed Sports City

Official local media partner — شبكة أبوظبي للإعلام ABU DHABI MEDIA NETWORK

Technical Conference organised by — SPE

Official media partner — Energy Connects

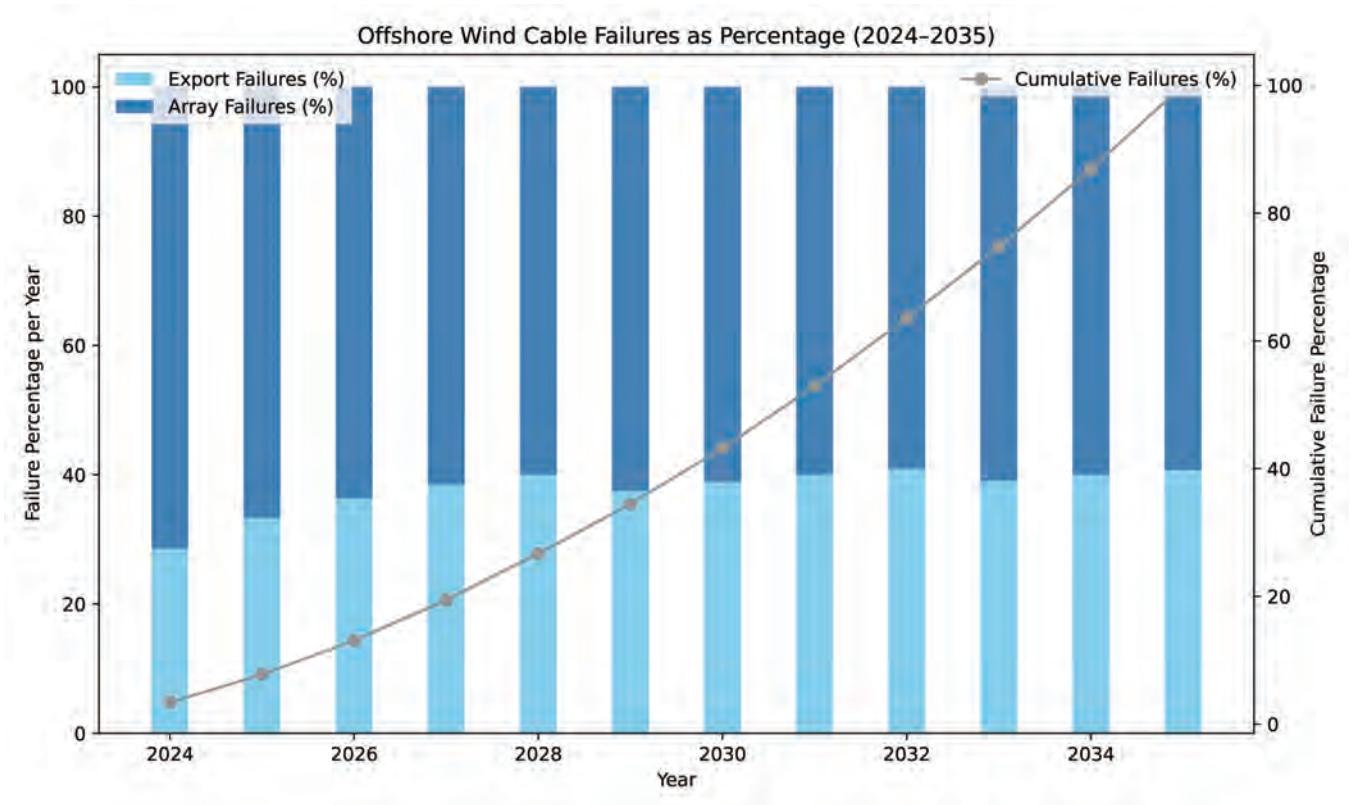
ADIPEC brought to you by — dmg events



REIMAGINING SUBSEA CABLE DESIGN:

Seequent's Integrated Approach to Thermal Modelling

As the offshore wind sector accelerates toward ambitious global energy targets, one persistent challenge continues to undermine progress: subsea cable failure. With failure rates hovering around 30% for wind farms with extensive cabling, the industry faces significant financial, operational, and environmental risks. These failures are not only the leading cause of insurance claims in offshore wind but also a major contributor to delays in first power—jeopardising project timelines and investor confidence.



At the heart of this issue lies a critical gap in how we understand and model the seabed. Traditional cable design methods often rely on oversimplified assumptions about subsurface conditions, leading to either over-engineered systems that inflate costs or under-engineered ones that fail prematurely. Seequent is addressing this challenge head-on with a pioneering approach that integrates 3D geological modelling and transient thermal finite element analysis—ushering in a new era of precision and sustainability in cable design. Leveraging deep expertise in offshore and onshore subsurface environments, Seequent is uniquely positioned to deliver integrated solutions that enhance reliability and help organisations reduce risk.

The Cost of Oversimplification

Submarine power cables are the arteries of offshore wind farms, yet their performance is intimately tied to the thermal and mechanical properties of the seabed. Conventional design practices often assume homogeneous ground conditions, ignoring natural variability in sediment composition, moisture content, and thermal conductivity. This can result in overly conservative cable sizing, increasing material use and environmental disturbance—or worse, thermal hotspots that lead to insulation breakdown and failure.

A New Paradigm: Integrated Ground Modelling

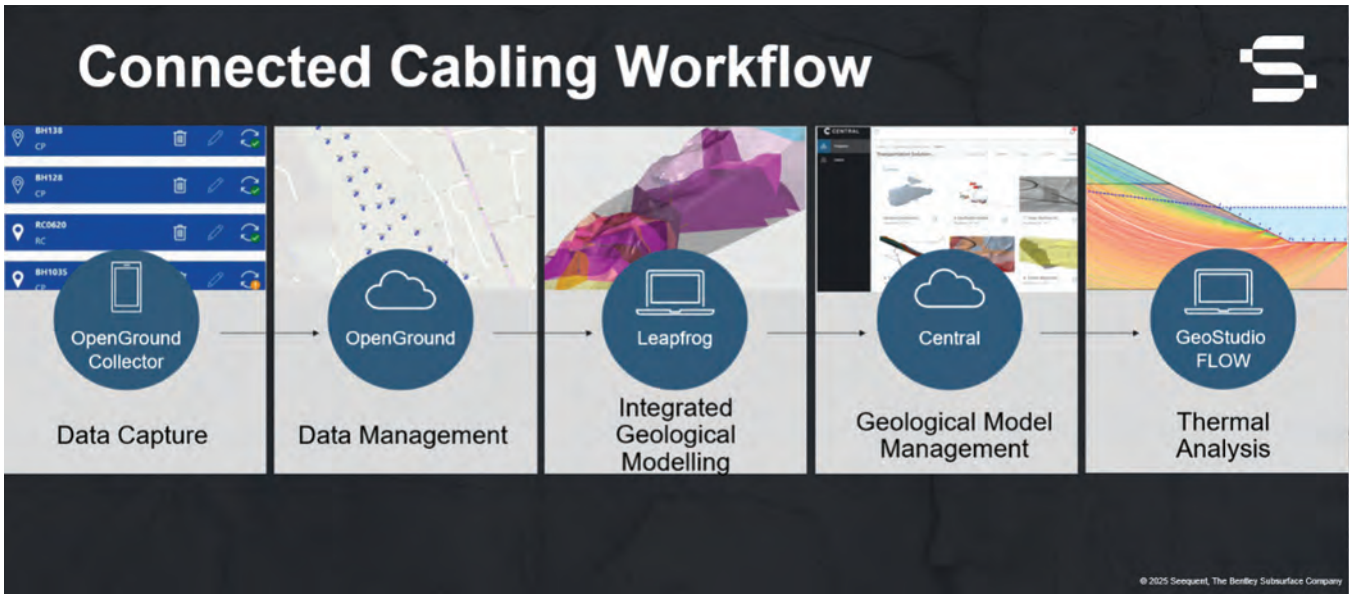
Seequent's workflow begins with the creation of a detailed 3D geological model using Leapfrog, capturing spatial variability in sediment types and thermal properties. This model is enriched with data from geophysical surveys, cone penetration tests (CPT), and surface mapping to build a comprehensive picture of the subsurface.

Thermal testing data are then evaluated within a 3D block model, enabling precise identification of zones with varying thermal conductivity. This model is seamlessly integrated with the geological model in Seequent's 3D environment, supporting the development and visualisation of a unified ground model. The result is a more complete understanding of thermal behaviour, underpinned by a robust framework for assessing additional subsurface risks—including sediment mobility, scour potential, and geoenvironmental interactions.

Precision Through Simulation

Using Temp/W, a finite element software, Seequent simulates transient thermal behaviour along selected cross-sections of the cable route. This enables accurate prediction of cable operating temperatures under varying load conditions and burial depths. Engineers can then optimise conductor sizing and reduce unnecessary material use—without compromising reliability.

This approach also supports back-analysis of existing infrastructure, offering insights into performance anomalies and opportunities for dynamic load management. By understanding how cables interact with their environment over time, operators can make informed decisions about maintenance, upgrades, and risk mitigation.



Beyond the Cable: Environmental and Economic Benefits

The benefits of this integrated approach extend beyond engineering efficiency. By accurately modelling thermal impacts on the surrounding seabed, developers can mitigate risks such as sediment fluidisation, geoenvironmental alteration, and habitat disruption—especially in sensitive marine environments under regulatory scrutiny.

Economically, the approach reduces the likelihood of costly failures and insurance claims, while streamlining the design process. By leveraging commonly available site investigation data, Seequent's methodology delivers strong return on investment—supporting more resilient and sustainable offshore energy development.

Addressing the Industry's Pain Points

This innovation comes at a critical time. The offshore wind industry is under pressure to scale rapidly while reducing costs and environmental impact. Yet cable failures continue to account for up to 80% of insurance claims in the sector, often linked to:

- Inadequate seabed classification, leading to poor route selection and burial strategies
- Under- or over-engineering, driven by fragmented project responsibilities and lack of integrated design frameworks
- Overloading, as wind farms increase in capacity without corresponding cable upgrades
- Delays to first power, resulting from installation setbacks and unanticipated thermal issues

Seequent's integrated modelling approach directly addresses these challenges by providing a robust, data-driven foundation for decision-making across the project lifecycle.

Looking Ahead

This methodology will be presented at the 2nd Offshore Wind Symposium, 18–19 September 2025, at the Geological Society, London. The presentation, titled *"Advancing Thermal Design of Submarine Cables through Integrated 3D Geological and Finite Element Modelling,"* will showcase real-world applications and the transformative potential of this approach.

As the offshore wind industry evolves, the need for smarter, more sustainable engineering solutions has never been greater. Seequent's commitment to innovation in subsurface modelling is helping to redefine what's possible—reducing risk, improving performance, and supporting the global transition to clean energy.

SEEQUENT

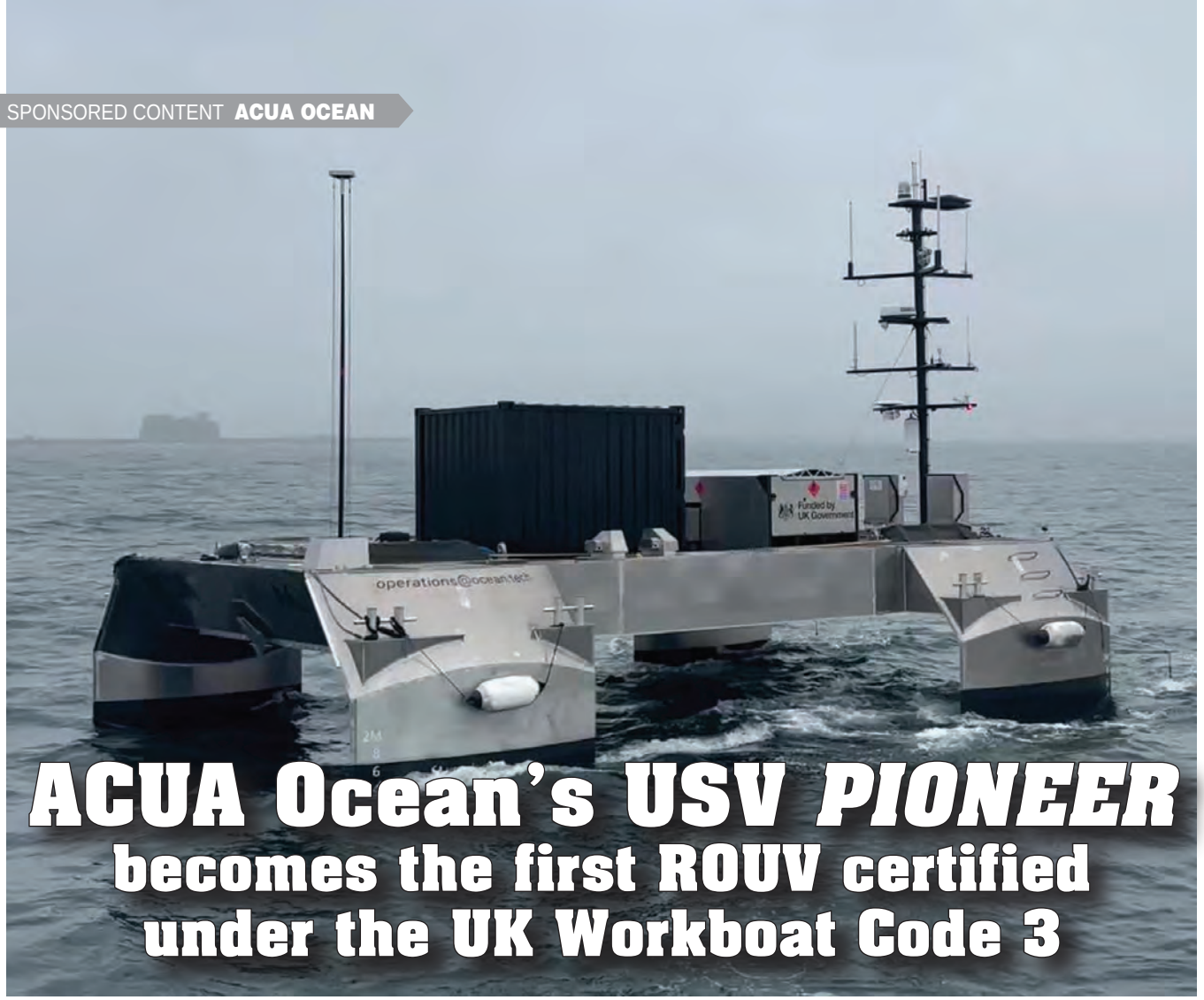
UNDERSTAND THE UNDERGROUND

Mitigate risk, optimise designs and reduce cost

Integrate geological, geophysical and geotechnical data, creating a comprehensive understanding of the subsurface, using Seequent's workflows.

Contact us for a demo

Seequent, The Bentley Subsurface Company



ACUA Ocean's USV *PIONEER* becomes the first ROUV certified under the UK Workboat Code 3

The certification represents a significant development in the evolution of regulatory pathways for uncrewed and autonomous vessels operating in UK waters.

Lloyd's Register (LR) has issued the UK's first certification for a remotely operated and unmanned vessel (ROUV) under the Maritime and Coastguard Agency's (MCA) Workboat Code Edition 3 (WBC3) Annex 2, with hydrogen-powered PIONEER from ACUA Ocean becoming the first vessel to achieve compliance.

Introduced by the MCA in December 2023, the WBC3 requirements set out safety and operational standards for ROUVs operating in UK waters. LR was the first certifying authority to be authorised by the MCA to issue certificates under Annex 2 and now becomes the first to complete a full certification process for an operational ROUV.

Developed by Plymouth-based ACUA Ocean, PIONEER is a hydrogen-powered, long-endurance uncrewed surface vessel (USV) designed for offshore surveillance, monitoring, and inspection.

Launched in December 2024, USV PIONEER is a 47ft, 25-ton unmanned surface vessel featuring advanced autonomous navigation, remote command capabilities, and a modular design tailored to a variety of offshore operations, including environmental monitoring, maritime domain awareness, and offshore infrastructure inspection.

PIONEER's novel SWATH design provides enhanced stability in higher seastates including operational availability for the launch and recovery of payloads such as ROV's in up to 4m significant wave heights. PIONEER features a moonpool, designed to rapidly integrate a range of interchangeable modular payloads based on 1x 20ft or 2x 10ft ISO standard containerised solutions of up to 6.5 tons. Planned work with the offshore sector includes survey, ROV and AUV deployments for light inspection and intervention work, as well as logistics for offshore platforms.

The world-first WBC3 certification supports PIONEER's advanced technical sea trials under the UK Clean Maritime Demonstration Competition (CMDC), which showcases innovative technologies aimed at accelerating maritime decarbonisation. Data from the sea trials continue to validate PIONEER's enhanced stability and increased reliability and capability over competitors.

Speaking at the announcement of the approval, Anderson Chaplow, Principal Specialist, LR, said: "This certification represents a major step forward—not just for ACUA Ocean or LR, but for the wider UK maritime industry. It proves that certification of small, complex ROUVs under Annex 2 is achievable and sets a precedent for others in the industry to follow. It also shows what's possible when developers, regulators and classification societies collaborate to bring emerging technologies safely into operation.

"We're grateful for the opportunity to work with ACUA Ocean and the ongoing support of the MCA in the development and implementation of these new standards, which will be critical as more complex autonomous systems enter operation."

Neil Tinmouth, CEO, ACUA Ocean said: "This certification under Annex 2 of the WBC 3 is a major milestone for ACUA and the industry. It's a testament to our team's commitment and focus on developing robust and reliable ROUVs to the highest standards, and it highlights our commitment to driving innovation and collaboration across the maritime sector."

On completion of sea trials, PIONEER is heading from her home port of Plymouth to London, for the DSEI defence conference, before travelling up the Thames to Tower Bridge for London International Shipping Week.

About Lloyd's Register:

Lloyd's Register (LR) is a global professional services group specialising in marine engineering, technology and digital solutions. We were created more than 260 years ago as the world's first marine classification society to improve and set standards for the safety of ships.

Today we are a leading provider of classification and compliance services to the marine and offshore industries, helping our clients design, construct and operate their assets to accepted levels of safety and environmental compliance.

Our digital solutions are relied upon by more than 30,000 vessels, following the acquisition of OneOcean in 2022 and Ocean Technologies Group in 2024.

In the race to zero emissions, our research, advisory and technical expertise and industry-firsts are supporting a safe, sustainable maritime energy transition.

Lloyd's Register Group is wholly owned by the Lloyd's Register Foundation, a politically and financially independent global charity that promotes safety and education.

www.lr.org

About ACUA Ocean:

Founded by Neil and Mike Tinmouth in 2021, ACUA Ocean is a UK-based scaleup designing and developing unmanned surface vessels (USVs) for ocean monitoring and data collection. ACUA's autonomous systems deliver enhanced full ocean capabilities for the launch and recovery of sensor and system payloads.

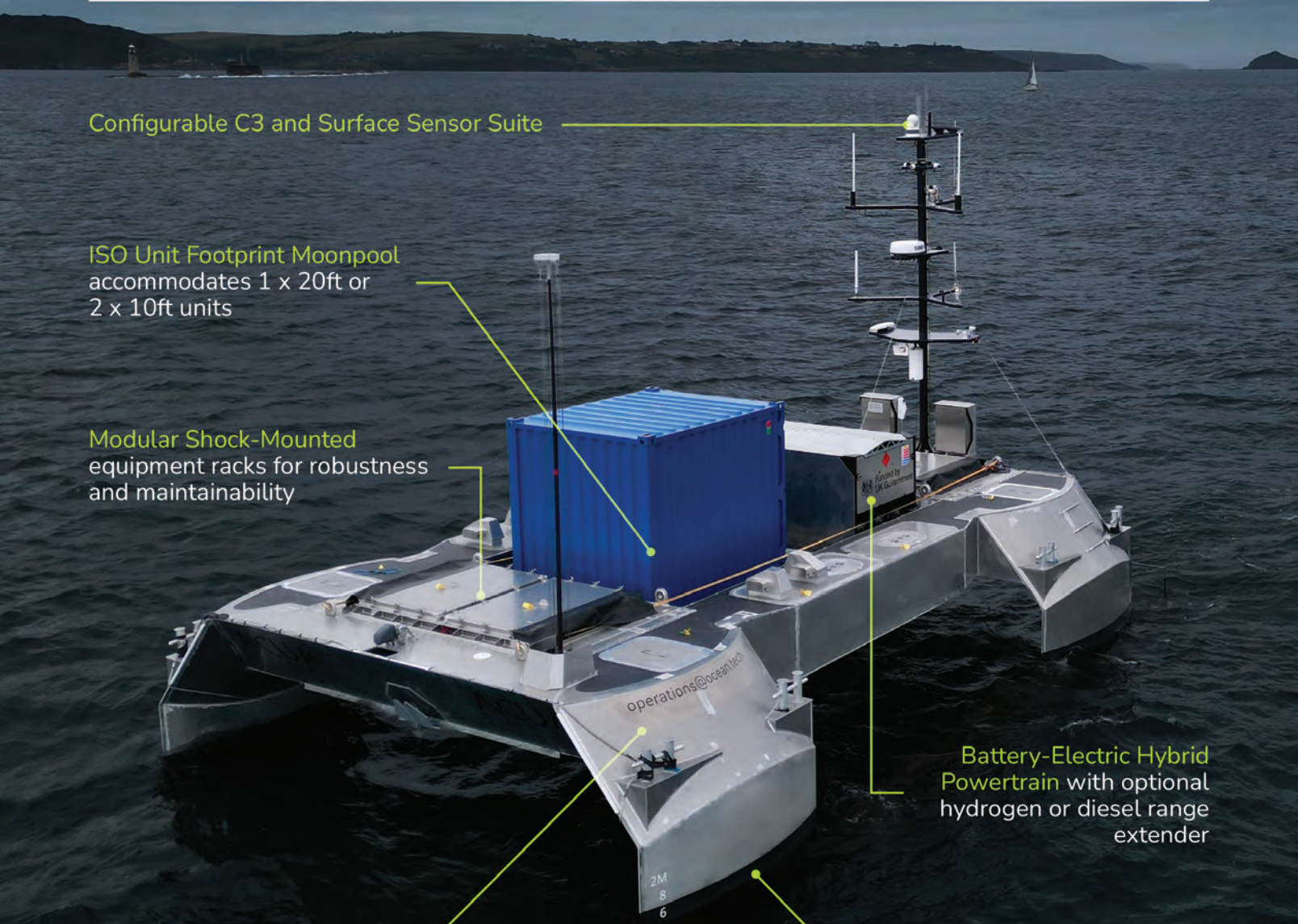
Website: www.ocean.tech

Contact: info@ocean.tech

USV PIONEER

Open-Ocean Multi-Purpose Platform

The Pioneer-class USV is an open-ocean, high endurance platform, capable of deploying a range of sensor and system payloads of up to 6.5 tonnes in its ISO-standard footprint moonpool.



Configurable C3 and Surface Sensor Suite

ISO Unit Footprint Moonpool accommodates 1 x 20ft or 2 x 10ft units

Modular Shock-Mounted equipment racks for robustness and maintainability

Battery-Electric Hybrid Powertrain with optional hydrogen or diesel range extender

Aluminium Small Waterplane Area Twin Hull (SWATH) form for seakeeping and stability

Modular Hull Components disassemble into road-transportable parts

ACUA OCEAN

LETS DISCUSS THE FUTURE OF OFFSHORE USVs

John Hunnibell | Chief Product Officer
john.hunnibell@ocean.tech

© YPF

Argentina's 30 MMtpa LNG Ambition by 2030 – *Is It feasible?*

The development of the Vaca Muerta has allowed Argentina to start fulfilling its potential as an energy exporter. The country already exports oil and some piped gas, but as the exploitation of Vaca Muerta accelerates, the opportunity to establish itself permanently as a player on the global LNG market arises.

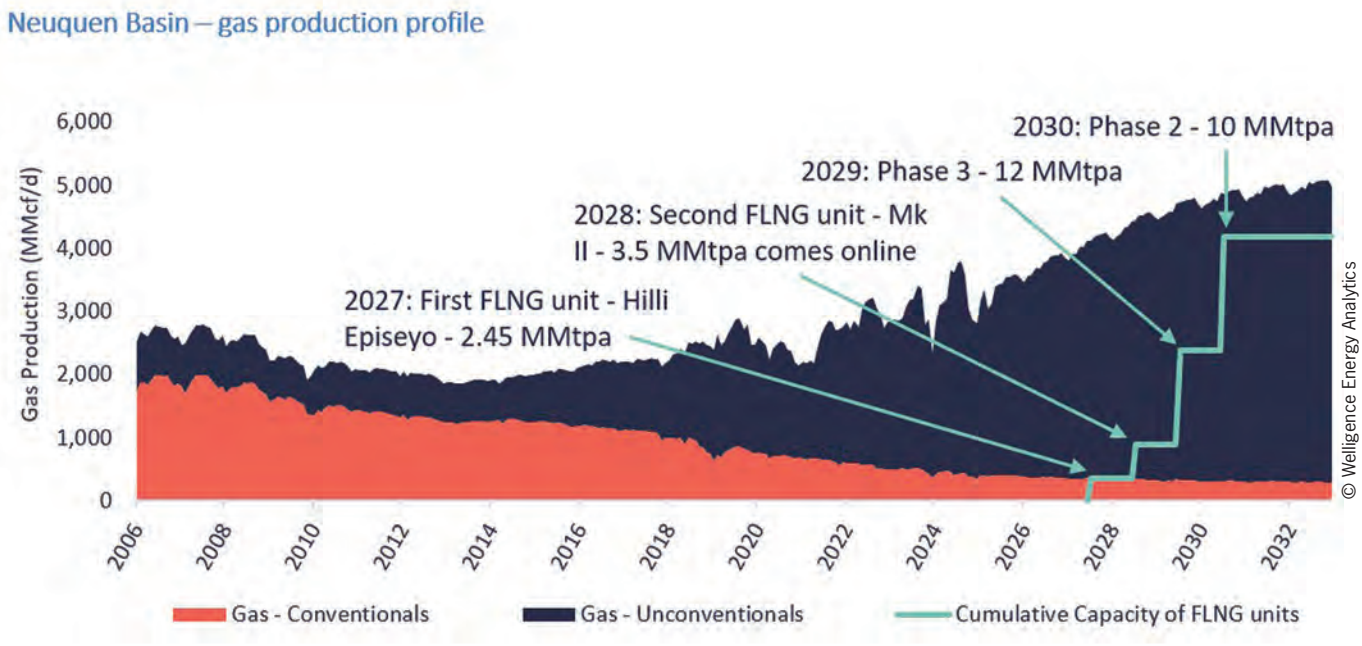
By Melissa Lucio, Analyst, Latin America, Welligence Energy Analytics

'Argentina LNG' is a large-scale LNG scheme designed to massively develop Vaca Muerta's resources to deliver energy to domestic and international market. It represents an ambitious collective of projects to be developed in following three phases:

Phase 1 (5.95 MMtpa): Southern Energy SA (SESA) – an incorporated JV comprising Pan American Energy, Pampa Energia, Harbour Energy, YPF, and Golar LNG – contracted Golar LNG to develop this phase through the Hilli Episeyo FLNG unit (2.45 MMtpa, to be redeployed from Cameroon) and the MK II (3.5 MMtpa, under conversion in China). Start-up of the first vessel is expected in 2027, followed by the second in 2028. A midstream player will construct a pipeline as part of the project.

The FLNG component of this first phase was admitted into the RIGI incentive program, which provides legal stability, the ability to repatriate profits, dividends, and capital, and shields the project from new national, provincial, or municipal taxes.

Phase 2 (10 MMtpa): In December 2024, YPF signed



a Project Development Agreement (PDA) with Shell to develop this phase, which will involve the construction of two newbuilds of 5 MMtpa each. A new pipeline will also be required for this phase, which has a 2030 start-up target.

Phase 3 (12 MMtpa): In June 2025, YPF signed an agreement with Eni to develop this phase via two newbuilds of 6 MMtpa each. Start-up in 2029 is the target.

Nonetheless, YPF's ongoing legal battle with Burford Capital over the Argentine government's expropriation of the NOC in 2012 poses a risk. On 30 June, a New York court ordered the transfer of the 51% expropriated stake as a partial payment to Burford. On 15 July, Burford agreed to suspend the transfer until the final decision is reached on Argentina's appeal in 2026. Until this is resolved, uncertainty will persist.

At full capacity, the project will require 4.2 Bcf/d of feedgas, essentially the country's entire production today. While we have no doubts about the Vaca Muerta shale's subsurface capacity to supply gas, we believe meeting the aggressive timelines to deliver LNG will be challenging.

LNG Marketing Continues

In January 2025, YPF signed an MoU for up to 10 MMtpa with India's ONGC, Gas Authority of India Limited (GAIL), and ONGC Videsh. Due to the high volatility of Brazilian LNG demand, given the country's seasonal hydropower output, Argentine LNG exports are expected through spot and short-term contracts. Meanwhile, Asian buyers continue evaluating additional LNG sources as they diversify away from the US and Qatar, while European buyers could benefit from their proximity to Argentina. Other potential offtakers are ADNOC, through its XRG subsidiary, and CNOOC, which holds a 25% stake in Pan American Energy.

While Argentina's investment environment has improved, some LNG investors and buyers remain averse to long-term investments in Argentine LNG projects and contracts, particularly given the country's short-lived Tango FLNG export experience during 2019-2020.

The FLNG Construction Challenge

YPF plans to construct four newbuild FLNG units, with capacities of at least 5 MMtpa – the largest ever built. We believe delivering these vessels on time will be challenging.

1. The world's biggest FLNG units: The proposed capacities of the new vessels are a step change from the 3.6 MMtpa capacity of the world's current largest operational FLNG unit, Shell's Prelude FLNG project in Australia.

2. Fighting for dock space: Securing shipyard capacity will be difficult, as the FLNG hulls will be newbuilds and must compete for dry dock slots with other facilities.

3. New contractors needed: Shell and Eni have experience working with Samsung Heavy Industries (SHI), responsible for constructing the Prelude and Coral South FLNG vessels. Others, like Keppel in Singapore and CIMC Raffles in China, are specialists in FLNG conversions. Wison in China also has experience in the FLNG market and has been contracted by Eni to build its second FLNG vessel for offshore Congo-Brazzaville.

Fierce global LNG supply competition

Between 2026 and 2030, the global LNG market will see an unprecedented wave of new liquefaction trains coming online, particularly in Qatar and the US Gulf Coast. Numerous pre-FID projects will compete with the Argentine projects. Moreover, the global pre-FID projects could pose a bigger challenge for Argentina LNG's Phases 2 and 3, as most of the other pre-FID projects are in regions where some projects have already come online and their reliability has been proven, e.g., the US Gulf Coast.

Due to its smaller capacity and earlier start-up, the first phase of the Argentina project will have a better chance of competing in the LNG market.

The Gulf of America Can Lead in Carbon Storage, If Washington Acts

The United States has everything it needs to lead in offshore carbon capture and storage (CCS), except the rules to make it happen.

By Erik Milito, President, National Ocean Industries Association

Nearly four years ago, Congress gave the Department of the Interior authority to oversee offshore carbon sequestration. The Infrastructure Investment and Jobs Act (IIJA) of 2021 amended the Outer Continental Shelf Lands Act (OCSLA) to authorize competitive leasing and regulation of carbon dioxide injection into subsea formations on the U.S. Outer Continental Shelf (OCS). The law required Interior to issue implementing regulations by November 2022.

That deadline has come and gone. Today, there's still no proposed rule, and each month without action makes it harder for U.S. companies to compete with early movers overseas.

Around the world, offshore CCS is shifting from concept to commercial reality. In the North Sea, Southeast Asia, and Australia, full-scale projects are being licensed, built, and prepared for decades of safe operation. BloombergNEF projects global carbon capture capacity will increase sixfold by 2030. DNV forecasts $80 billion in cumulative CCS investment over the coming decade.

The U.S. should be leading this charge. Instead, we're watching competitors move forward while we remain stuck in neutral. Every year of regulatory delay is a year of lost investment, lost technology leadership, and lost opportunity for Gulf Coast communities that are ready to work.

Few regions can match the Gulf of America's advantages for offshore CCS:

- **World-class geology** — vast deep saline formations with the capacity to store billions of tons of CO_2 securely.
- **Proximity to emitters** — major industrial hubs in Texas and Louisiana are just miles from offshore storage potential, reducing transport costs and complexity.
- **A seasoned workforce** — thousands of engineers, geoscientists, vessel crews, and offshore safety professionals who already operate in this environment daily.
- **Proven infrastructure** — ports, fabrication yards, and shipyards that can pivot from traditional oil and gas to CCS support.

Gulf Coast CCS momentum is building, even without federal rules in place. In April 2025, TGS released the final segment of its comprehensive Mega Gulf Coast Assessment, mapping carbon sequestration potential across coastal Texas, Louisiana, and Mississippi. In September 2024, Viridien completed Phase 2 of its GeoVerse Carbon Storage Screening Study for Texas state waters. Meanwhile, the Offshore Gulf of Mexico Partnership for Carbon Storage (GoMCarb) is actively evaluating offshore storage potential, with final results expected by mid-2026. GoMCarb brings together academic researchers, government agencies, and industry to close knowledge gaps, address regulatory and infrastructure needs, and solve the geologic and engineering challenges of storing CO_2 safely and permanently.

The Gulf's existing offshore energy expertise is unmatched. The same capabilities that built deepwater platforms and subsea systems can now be deployed to develop the next frontier in decarbonization.

We're already seeing early private-sector investment. But like all capital-intensive projects, CCS needs regulatory certainty. Without a clear leasing process and permitting pathway from the Department of the Interior, developers and investors are forced to delay or look elsewhere.

Interior's offshore CCS framework must be:

- **Durable** — providing long-term certainty for investors and operators.
- **Transparent** — with clear leasing criteria, timelines, and responsibilities.
- **Flexible** — adaptable to new technologies, evolving best practices, and scale-up needs.
- **Grounded in safety and environmental stewardship** — leveraging decades of offshore operational experience.

Just as importantly, the process for developing the rules must be open and collaborative, engaging industry, states, and stakeholders to ensure the final regulations are workable and future-proof.

Offshore CCS isn't just an environmental solution, it's an economic driver. For Gulf Coast states, it means new contracts for shipyards, fabrication yards, and offshore service providers. For U.S. manufacturers, it means orders for compressors, pipelines, and monitoring systems. For port authorities, it means investments in terminals, dredging, and logistics infrastructure.

It also strengthens America's energy security. By reducing emissions from hard-to-abate sectors like steel, cement, and refining, industries critical to our economy, offshore CCS helps preserve domestic industrial capacity instead of forcing production offshore.

The offshore energy sector has not been waiting idly. NOIA members have spent the past several years working through trade associations and technical groups to provide detailed recommendations to BOEM and BSEE. These inputs cover everything from site characterization and reservoir integrity to long-term monitoring and liability frameworks.

We appreciate recent signs of federal support, including comments from Interior leadership acknowledging the importance of this issue. We encourage that momentum to continue, because without regulatory clarity, the U.S. risks ceding ground in a critical emerging market.

The U.S. has a unique opportunity to turn one of its most important strategic resources, the Gulf of America, into a world-class hub for carbon management and more broadly a global energy and technology leader for vast activities in the blue economy. Finalizing the offshore carbon storage rules is the key to unlocking that future. Let's get it done.

Lars Morkin © Equinor

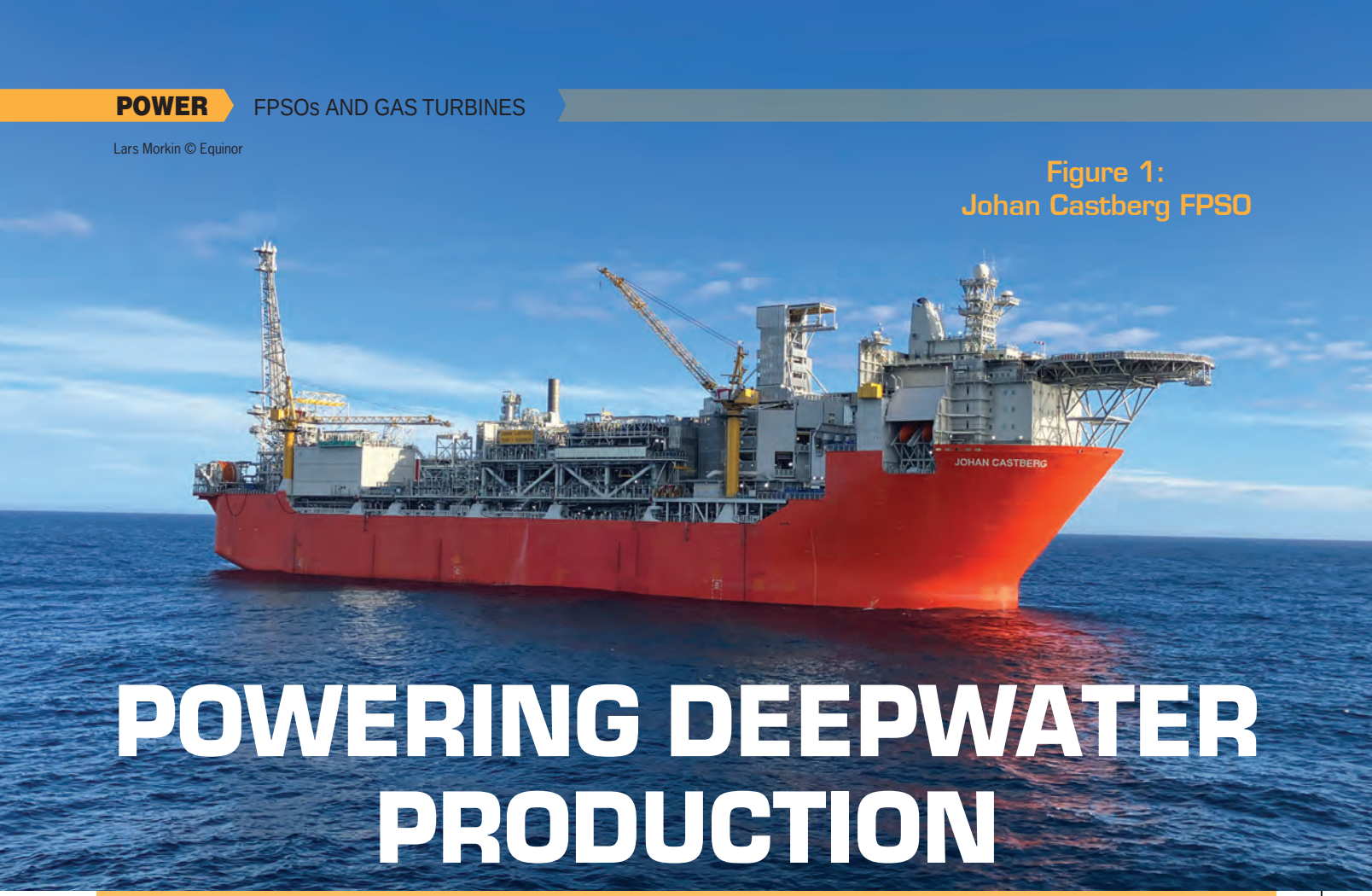


Figure 1:
Johan Castberg FPSO

POWERING DEEPWATER PRODUCTION

Designing Gas Turbines for Modern FPSOs

By Philipp Geipel and Atif Aliuddin, Siemens Energy

Preventing unplanned downtime of rotating equipment assets, such as gas turbines and compressors, is important to success in the offshore production environment. This is particularly the case for fields located in harsh environments and highly remote locations, where the cost and complexity of performing maintenance and repairs is often magnified. At the same time, tightening environmental regulations, coupled with voluntary commitments from offshore operators to decarbonize, has increased focus on the fuel efficiency and emissions footprint of prime movers.

Companies have taken strategic steps in recent years to help the industry address these challenges by designing rotating equipment packages to meet the demands of modern FPSOs.

An example of this is the SGT-750 industrial gas turbine, which recently began operation on the Johan Castberg FPSO (Figure 1) in the Barents Sea, where it is being used to drive two DATUM centrifugal compressors in 1x100% service (i.e., with no backup). The compressors reinject gas into the reservoir, providing pressurization and eliminating the need for capture or flaring, the latter of which is not permissible in the region.

This article highlights several unique features of the compression train installed on Johan Castberg and discusses how the SGT-750 is supporting offshore requirements for low emissions and high availability in both direct drive and power generation applications.

JOHAN CASTBERG PROJECT OVERVIEW

Johan Castberg is Norway's most northerly Arctic field development project and is located roughly 240 kilometers northwest of Hammerfest. The development concept includes 30 wells distributed across ten subsea templates and two satellites that will be tied back to the FPSO. According to Equinor, production rates from the field could reach up to 220,000 barrels per day at the peak[1].

The reinjection compressors on Johan Castberg are being driven in tandem arrangement by a single SGT-750 twin-shaft industrial gas turbine. The frame features a free 2-stage power turbine with a nominal shaft speed of 6,100 rpm and output of 41 megawatts. In direct drive applications, the SGT-750 supports speeds ranging from 50 - 105% and does not require an intermediate gearbox. This reduces the turbine's weight and footprint, making it well-suited for offshore applications.

The turbine permits both frequent and rapid starts and can reach full load in less than 10 minutes (under settle out conditions). On Johan Castberg, the centrifugal compressors and gas turbine share a common lube oil unit and other auxiliaries, including the starter motor and electrically driven back-up systems, all of which are mounted on the base frame.

A waste heat recovery unit captures heat from the gas turbine's exhaust for distribution as heated liquid to prevent ice build-up on various parts of the superstructure. The heat can also be supplied to the HVAC plant or for processing crude from the wells.

SATISFYING STRINGENT EMISSIONS REQUIREMENTS

Gas turbines specified for offshore applications are expected to operate reliability on a wide range of fuel compositions, often with calorific values considerably different from standard pipeline gas[2]. For this reason, the majority of gas turbines installed offshore utilize non-dry low emissions (DLE) combustion technology, which generally is more tolerant to different fuel types.

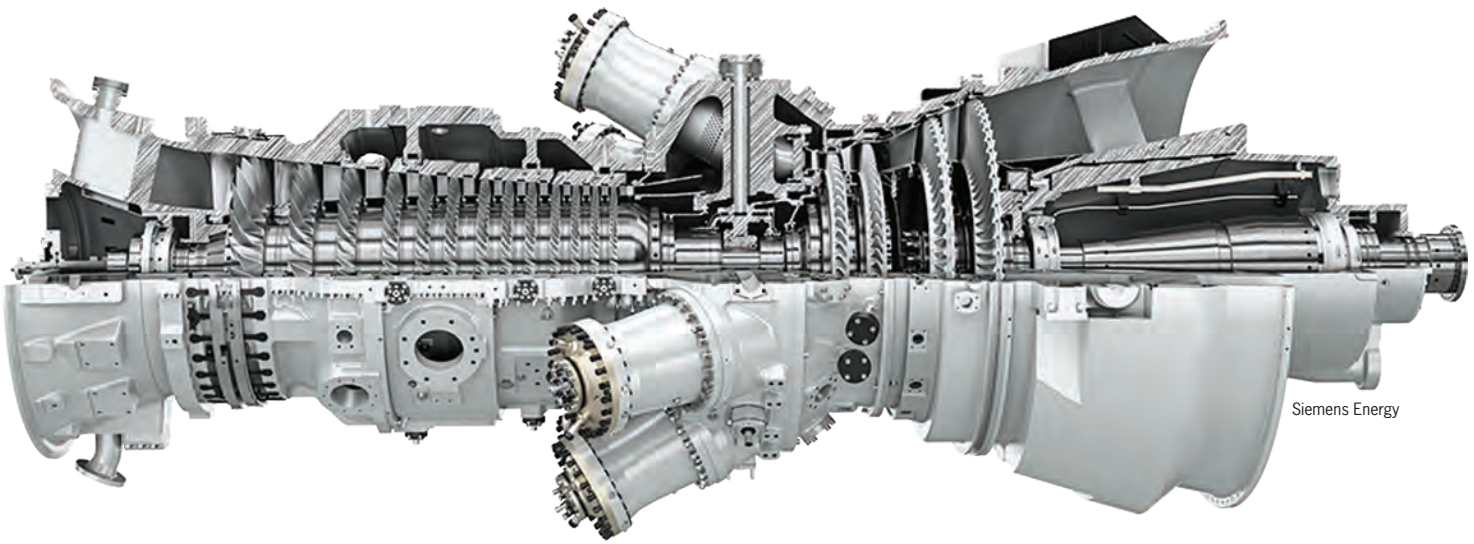
Non-DLE systems, however, do come with trade-offs that operators must consider, including the acceptance of higher nitrous oxide (NOx) emissions, typically in excess of 250 parts per million (ppm).

In recent years, as the focus on environmental performance has increased (particularly in the North Sea and Barents Sea), more projects are specifying NOx emissions of less than 10 ppm. Gas turbine OEMs have responded to these requests by investing in the development of state-of-the-art DLE combustion systems.

DLE combustion systems differ from non-DLE in that they are not required to use injected diluents, such as water or steam, to quench the flame and reduce NOx production. Multiple DLE technologies have been developed over the years, including lean pre-mixed combustion; staged combustion; catalytic combustion; and rich-burn lean quench combustion. Of these, lean pre-mixed systems, which lower NOx formation by combusting fuel in an excess of air, have emerged as the technology of choice.

The SGT-750 used on Johan Castberg utilizes a 4th

Figure 2:
SGT-750 driving two centrifugal compressors for gas reinjection on Johan Castberg.



Siemens Energy

generation, lean pre-mixed DLE system that can achieve single digit ppm NOx and carbon monoxide (CO) levels down to a 20% load.

Overall, the use of DLE combustion systems with weak and medium calorific value fuels has been subject to rigorous development programs. In addition to fundamental design and analytical work, comprehensive combustion rig testing along with core engine and full packaged unit testing has been completed. DLE engines are now capable of reliably operating on a wide range of fuel compositions and are considered an established technology for offshore production applications.

14 DAYS OF DOWNTIME OVER 17 YEARS

Extending mean time between overhauls (MTBO) and reducing the duration of both planned and unplanned maintenance on rotating equipment is prioritized in offshore production applications. This is particularly the case on Johan Castberg, as the gas reinjection train, which is necessary for production, is operating in 1x100 configuration without backup.

When it comes to overhauling gas turbines, end-users generally have two options. The first option is to conduct all maintenance activities on the core engine, auxiliaries, and driven equipment onsite. The second is to perform a rapid onsite engine exchange using a customer owned spare and then transport the existing engine core to an onshore workshop or OEM facility for servicing.

For the SGT-750, the second option results in total planned downtime of 14 days over 17 years. The core engine exchange can be performed in 24 hours from load to load. Additionally, the compressors utilize modularized bundle concept, which minimizes the time needed to swap out spares and reduces overall maintenance costs.

Availability of the compression train on Johan Castberg is expected to be 99.5%. This is approximately 0.5% higher than what is typically specified for similar offshore applications.

To support high availability targets, the SGT-750 is equipped with online infrared monitoring of the turbine hot section. Each camera covers the pressure side, suction side, and the platform. Before and after each inspection, measurement of the turbine blades' surface temperature in the compressor section can be performed while the machine is on load.

The cameras allow for early, non-destructive detection of possible issues, such as cracks or blockage of cooling holes, before they lead to failure events. Infrared images also speed up service activities by providing technicians with valuable diagnostic information. Other notable features of the SGT-750 include:

- Borescope ports for five of the 13 compressor stages.
- A door that allows access to the compressor at the front of the air inlet chamber.
- An overhead crane inside the gas turbine enclosure. The enclosure was designed with enough space for operating personnel to walk around the machine and exchange combustor components.
- A gas generator that can be removed from either side of the installation. The generator is then disconnected from the air intake and power turbine and removed sideways on a rail assembly.

Johan Castberg officially came on stream on March 31 of this year. On June 17th, it reached its peak production capacity of 220,000 barrels of oil per day. This increases energy deliveries from the Barents Sea by 150%[3]. Since the installation, Siemens Energy has received three additional orders for the SGT-750 from FPSO projects for power generation.

1 Equinor. Johan Castberg Anchored on the Field. September 2024. url: https://www.equinor.com/news/johan-castberg-anchored-on-the-field

2 Bulat, Ghenadie , and Matthew Rickert. "*Making the Case for Dry Low Emissions Technology in Offshore Oil and Gas Applications.*" Paper presented at the Abu Dhabi International Petroleum Exhibition & Conference, Abu Dhabi, UAE, November 2019. doi: https://doi.org/10.2118/197830-MS

3 Equinor

Offshore Europe

SPE Offshore Europe

CONFERENCE & EXHIBITION

2-5 SEPTEMBER 2025, P&J LIVE, ABEERDEN

ACCELERATING THE TRANSITION TO A BETTER ENERGY FUTURE

Explore ground-breaking solutions in offshore energy, smart tech and net zero.

REGISTER NOW!

TotalEnergies

Headline Sponsor

offshore-europe.co.uk/oe

Organised by

Solutions. People. Energy.

Image courtesy ANYbotics

PATROLLING ROBOTS TAKE THEIR NEXT STEPS OFFSHORE

Patrolling robots have proven their worth onshore, and confidence is growing in their performance offshore.

By Wendy Laursen

Marc Dassler has hundreds of pictures of people making goofy faces at the cameras on patrolling robots. It's a good sign, he says, people are getting used to having them around.

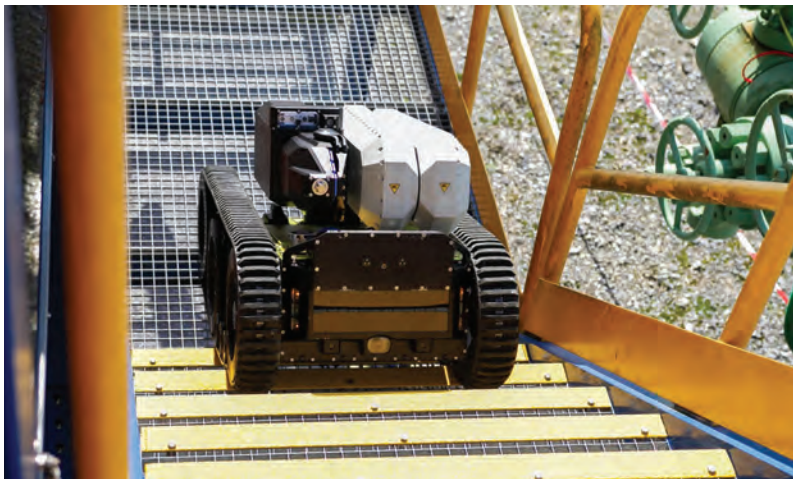
Dassler is CEO of Energy Robotics, a producer of hardware-agnostic robotics software. Looking to the future, he says: "We have a couple of offshore deployments, and we see a positive trend, but we need to first build trust in the technology. People need to get used to having robots around and see they're doing a great job. Then we can talk about them activating levers and pressing buttons. Technically it's possible, but the change management needs to come first."

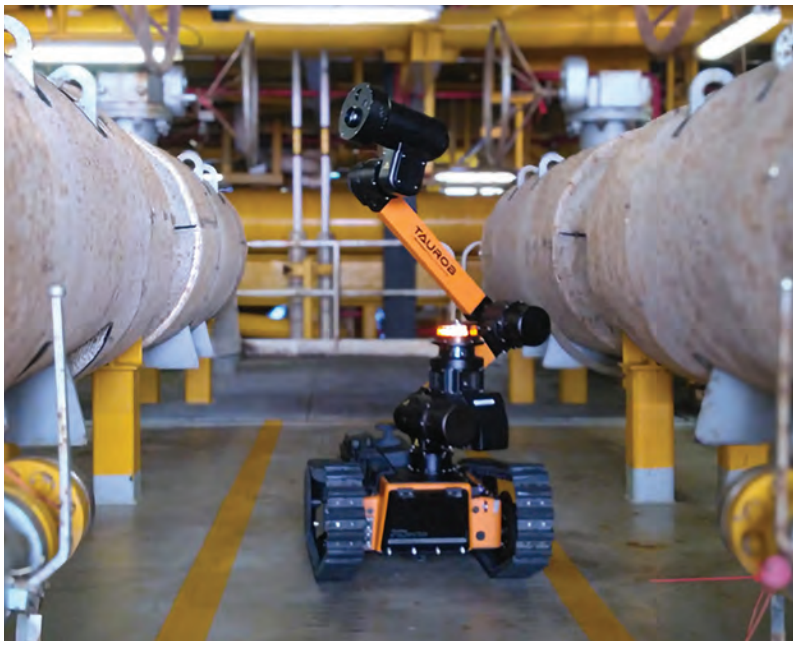
Energy Robotics has built a software platform for operating all available oil and gas ATEX certified robots, including those of ExRobotics, Taurob, Mitsubishi Heavy Industries and others. It is used for planning, executing and monitoring fully autonomous operator rounds and inspection tasks with robots and drones. All data collected by the robots is integrated into one digital twin. Operators don't have to worry about data silos created by different robots when they have one world view, says Dassler.

Robots are getting very good at understanding the environment around them. "You can already talk to them using ChatGPT-style large language models and say: 'Look at all the pumps and motors and pipes. Do that three times a day and report back when something is wrong.'"

Now Energy Robotics is boosting human perceptions. "We have a lot of deployments in refineries where we have robots multiple times a day doing operator rounds and inspecting the equipment, and the data is completely integrated back into the asset management system or digital twin of the customer. But robots see the world different. They operate in point clouds – LIDAR scans of the environment. Not easy for humans to navigate and understand. That's why we have created our Evergreen digital twin. It allows us to take all the data that we have generated and create a very immersive environment which looks like a 3D computer game."

With the Evergreen Digital Twin, the operator has an up-to-date representation of their offshore plant. "This was a revelation because we created it for the humans to operate robots safer, plan inspection mission and monitor the robots. And then the customers saw it and came up for another idea. They now have remote eyes and ears out there and can use the robot to provide a live feed of its environment. This is great for pre-planning maintenance,





Images courtesy Taurob

refitting and repair tasks."

ANYbotics has launched Data Navigator, an asset management platform for its four-legged inspection robot, ANYmal. The platform centralizes asset condition data, such as thermal, acoustic, visual and gas readings, to simplify asset health assessments and provide trend monitoring for preventive maintenance. Data Navigator's intuitive interface requires no specialized robotics expertise. It can integrate seamlessly with existing IT infrastructure and can integrate with enterprise systems like SAP and IBM.

Sustainable energy company Equans manufactures, installs and offers maintenance services for offshore wind substations, and the company is integrating ANYmal into its maintenance service solution. The aim is to avoid the need for dispatching a crew transfer vessel to conduct inspections. This can be a costly process often delayed by poor weather conditions, and typically over 70% of turbine alarms are false positives, unnecessarily triggering offshore interventions.

Permanently stationed on the platforms, ANYmal carries out autonomous inspections around the clock. Its inspection capabilities include temperature monitoring of key components to help prevent overheating; visual checks to identify structural issues like corrosion or cracks; gas and environmental readings to ensure compliance and leak detection and acoustic sensing to identify early signs

ANYmal MEETS THE REQUIREMENTS OF IP67, THE INDUSTRY STANDARD FOR PROTECTION IN INSPECTION ROBOTS.

Images courtesy ANYbotics

of mechanical failure through subtle sound patterns. With ANYmal's teleoperation functionality, onshore teams can remotely verify alarms in real-time.

ANYbotics has now launched a gas leak and presence detection solution that can be fitted on ANYmal. The system integrates advanced, modular gas detectors with 360° acoustic imaging to precisely pinpoint leak sources and simultaneously measure ambient gas concentrations. The acoustic imaging camera can detect a wide array of common industrial gas leaks, such as steam, compressed air, vacuum, toxic gases and hydrocarbons. It can also identify partial discharge events and mechanical anomalies. The system then quantifies the rate and cost of a detected loss and delivers the information directly into Data Navigator.

ANYmal meets the requirements of IP67, the industry standard for protection in inspection robots, which ensures it is fully dust-tight and can withstand temporary immersion in water up to one meter for 30 minutes. The certification demonstrates that sensitive components are protected from dust, moisture, corrosive substances and other contaminants, enabling reliable operation in harsh industrial environments.

Reliability is a key necessity offshore, says Ian Peerless, Commercial Director at ExRobotics. The company has already deployed its robot on an unmanned offshore platform in South East Asia for over six months. "Once you go offshore, the cost of deployment is so much higher. Reliability is the number one hurdle, but we have got to the point where our robot has been proven to operate for six months offshore without human intervention. If you can't achieve that, then the cost of robot maintenance and repair can be prohibitive."

The robot's mission wasn't programmed by someone on the platform. "The robot was put on the platform, on its charger, and everyone left the platform when the accommodation barge left. The robot was then programmed from 1,000 kilometers away in an office in Kuala Lumpur."

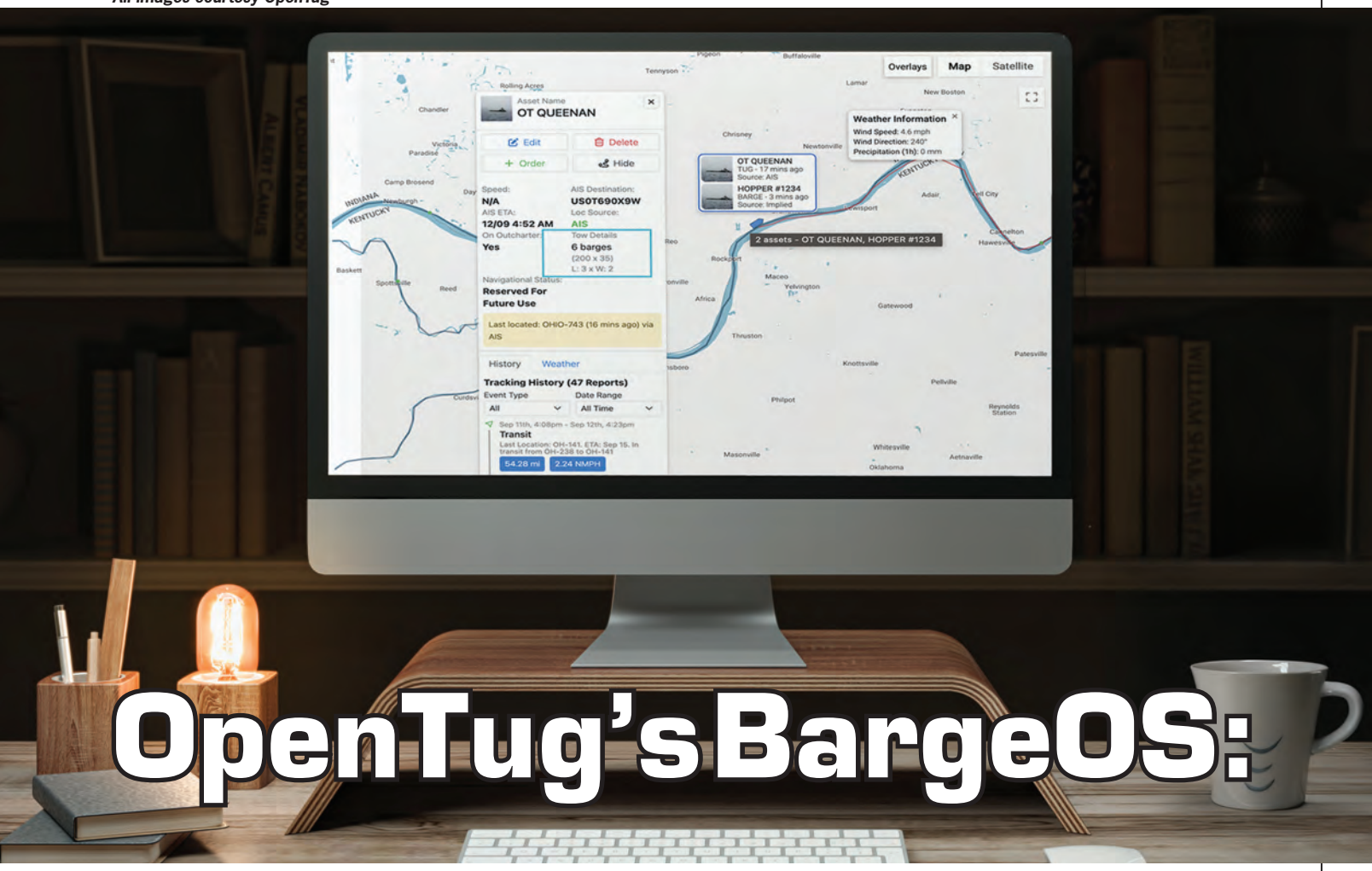
Together with industry partners Taurob has been working on an offshore work class robot – the Taurob Operator, a new robot that is capable of performing heavy-duty tasks offshore. "The overall idea is to have robots take over more tasks and reduce the footprint of oil and gas platforms, making them leaner, less complex and effectively reduce the number of people on-site," says Matthias Biegl, Managing Director of Taurob.

"The plan for the future is to have platforms that are more robot friendly in order to allow robots to operate better in challenging marine environments."

ALL EXROBOTICS ROBOTS ARE CERTIFIED FOR USE IN POTENTIALLY EXPLOSIVE GAS LOCATIONS IN TEMPERATURES RANGING FROM -40C TO +55C DEPENDING ON THE OPTIONS INSTALLED.

Images courtesy ANYbotics

All images courtesy OpenTug



OpenTug's BargeOS:

REAL-TIME VISIBILITY, PREDICTIVE INTELLIGENCE TO O&G BARGE LOGISTICS

*The tow and barge industry is, to put it kindly, a conservative industry built on a traditional way of doing things. But times are changing, and the need for digital solutions to help track and verify cargoes – particularly in the high-value energy market – is becoming mandatory. The upside: gains in operational efficiency are real and measurable too, for both the transportation company and the shipper, as **Jason Aristides**, Founder and CEO, OpenTug, discusses in a recent interview with Offshore Engineer TV.*

In the competitive world of offshore energy logistics, where the value of a single shipment can stretch into the tens of millions, efficiency, transparency, and predictability are paramount. Jason Aristides, founder and CEO of OpenTug, believes the barge sector, long hampered by manual processes and limited data visibility, is overdue for a digital revolution.

Founded out of Aristides' firsthand experience at Foss Maritime, OpenTug began as a marketplace platform for barge transport before pivoting into a full-scale software-as-a-service (SaaS) provider. Its flagship solution, BargeOS, now serves as an operating system for barge logistics, enabling companies to quote, schedule, track, and reconcile barge voyages in a single digital platform.

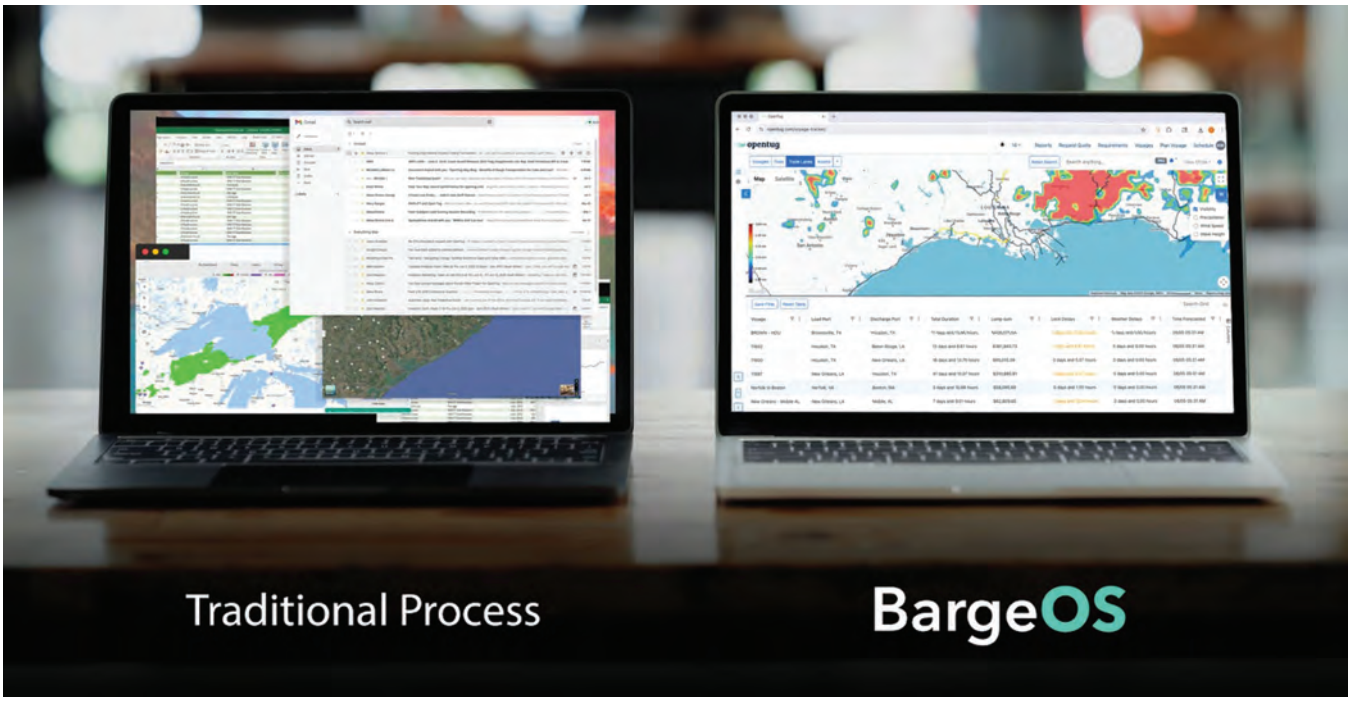
Mind the [Visibility] Gap

Unlike tugboats, barges in the U.S. are not covered by AIS requirements, making it difficult for shippers to know where their cargo is in real time. For the oil and gas sector — where high-value liquid cargo demands absolute precision — this information gap can cause costly idle time and disrupt downstream operations.

OpenTug is filling that gap with a multi-pronged approach. The company tracks over 3,500 active barges each month, deploying GPS devices to deliver live location data, integrating voyage orders and traffic updates via AI, and consolidating this information into a single source of truth. For oil and gas operators, that means real-time ETA

With recent investment from maritime-focused backers, OpenTug is doubling down on AI-driven document processing, live tracking infrastructure, and collaborative tools designed to bridge operators, shippers and terminals.

– JASON ARISTIDES,
FOUNDER AND CEO OF OPENTUG



updates, operational alerts, and a verified record of voyage activity — all critical for safety compliance, contract accuracy, and optimizing fleet utilization.

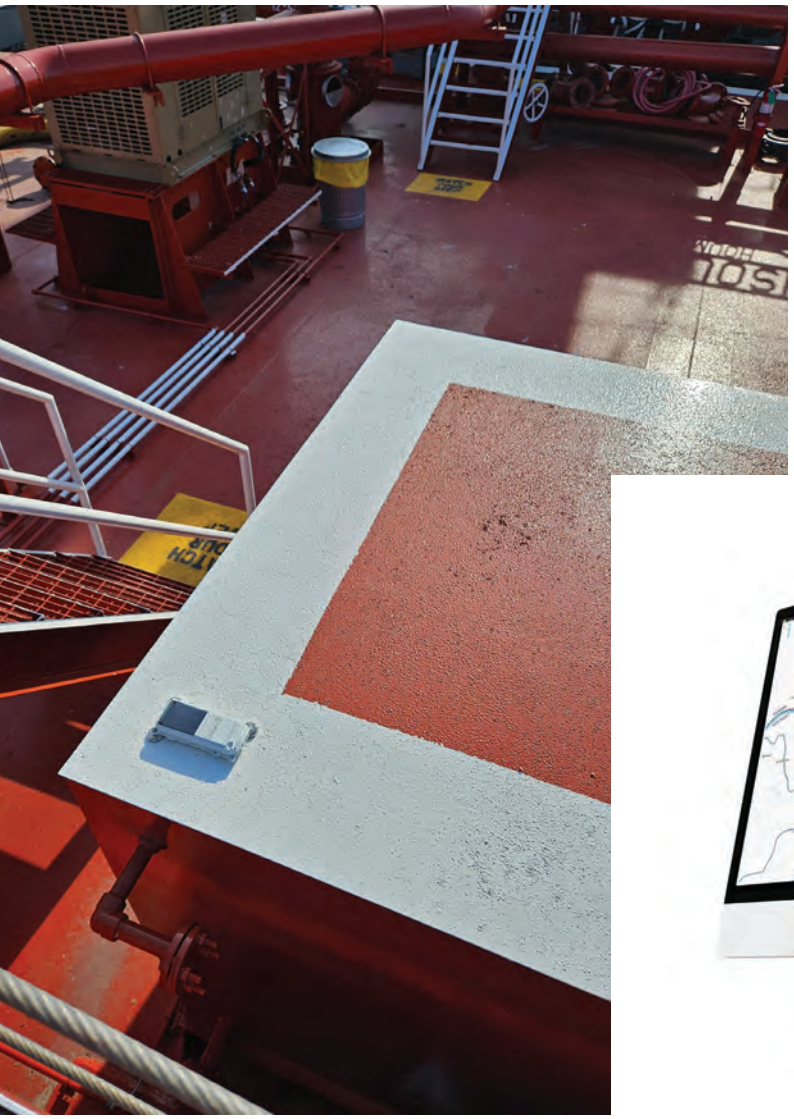
Case Studies in Efficiency

One Gulf Coast carrier previously spent hours pricing voyages for customers, factoring in unpredictable river conditions, water levels, and lock delays. OpenTug's automated quoting engine, part of BargeOS, turned that into an instant process, improving margin accuracy and helping close deals faster.

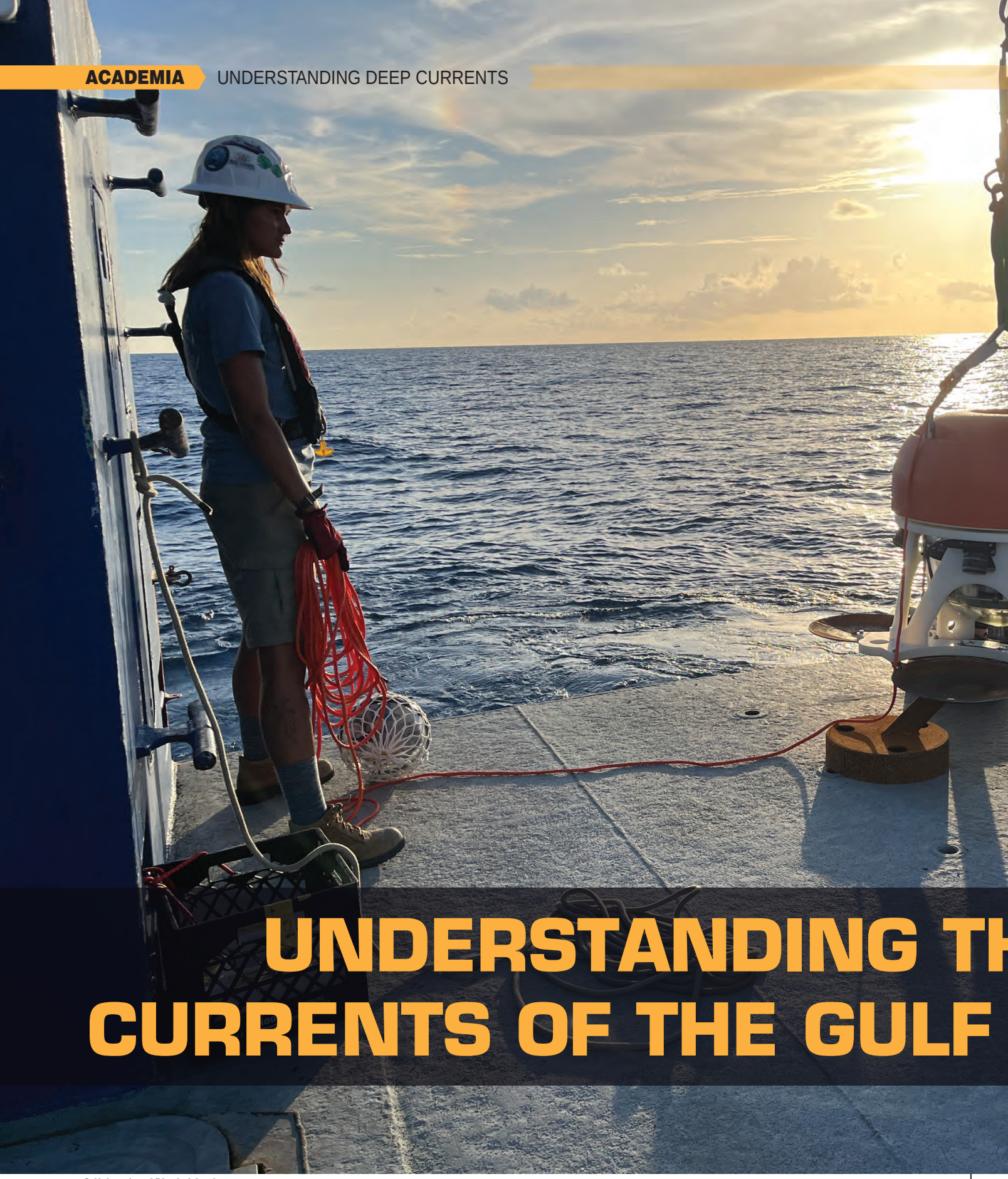
For a major oil and gas shipper, the challenge was coordinating multiple stakeholders who needed to know when barges would be ready for loading. By integrating GPS tracking, voyage management systems, and automated email data capture, OpenTug created a real-time operational dashboard. The result: less time spent chasing updates, more time making proactive decisions that cut idle days and boosted throughput.

With recent investment from maritime-focused backers, OpenTug is doubling down on AI-driven document processing, live tracking infrastructure, and collaborative tools designed to bridge operators, shippers, and terminals. Aristides' vision is clear — make barge transport as accessible and predictable as road or rail, and in doing so, unlock its potential to move more cargo at lower cost without the need for new vessel construction.

For oil and gas players seeking to tighten control over high-value barge shipments, BargeOS is designed to be more than a logistics tool: if deployed it can provide a competitive advantage in a sector where timing, cost certainty, and asset efficiency directly impact the bottom line.



OETV
Watch the full interview with Jason Aristides on *Offshore Engineer TV*



UNDERSTANDING TH CURRENTS OF THE GULF

HE DEEP OF AMERICA

Since 2018, the National Academies of Sciences, Engineering, and Medicine has been conducting the Understanding Gulf Ocean Systems (UGOS) initiative, a long-term research campaign to improve understanding and prediction of the Gulf of America Loop Current System. The overarching goal of UGOS is to improve forecasting of the Gulf's oceanographic conditions at spatial and temporal scales relevant to key stakeholders, particularly in reducing risks for offshore energy exploration and production. This is achieved through cost-effective ocean observations, advanced data assimilation techniques, and improvements to forecast models. More than 100 researchers from 30 organizations (including US and Mexican academic institutions, federal agencies, and private industry) are contributing to this critical effort.

By Jan van Smirren,
Technical Coordinator of National Academies of Sciences, Engineering, and Medicine's Understanding Gulf Ocean Systems initiative

Previously, strong currents in the deepwater Outer Continental Shelf (OCS) have been identified, extending from 1000m (3000ft) below the water surface down to the sea floor with consistent speed and direction, that intensify as they get close to the seabed. These pulses of strong currents propagate along the Sigsbee Escarpment from East to West. During these events, the deep currents can exceed one knot making them a critical factor for offshore energy operations.

The events have been the subject of a Safety Alert from the US Department of the Interior's Bureau of Safety and Environmental Enforcement (Safety Alert Number 180). Analyses of observational datasets have shown that the events have characteristics similar to Topographic Rossby Waves (TRW), which have been identified in other ocean basins. These are large-scale features that are characterized by little change in speed and direction with elevation above the seabed. They intensify as the seabed is approached until the effect of friction at the seabed reduces their speed.

Studies of TRWs have been undertaken by Fugro, BOEM, and the Deepstar Consortium. Several hydrodynamic numerical models are run routinely in a forecast mode that provide output in the Gulf, such as the NOAA Global Real-Time Ocean Forecast System (RTOFS) that is based on the 1/12° HYbrid Coordinates Ocean Model (HYCOM). Unfortunately, due to the horizontal and vertical grid size, these models are too coarse to properly represent TRW-like motions along the steep and narrow Sigsbee Escarpment.

Beginning in 2008, the Deepstar Consortium commissioned Florida State University (FSU) to undertake a number of modelling studies, and the model was then used to hindcast the BOEM and DeepStar measurements, culminating in a well-validated model. In the process, FSU indicated that the TRWs were being generated by the interaction of the Loop Current (or a recently detached eddy) and its associated meanders on the outer slope of the Mississippi Fan, just south of the delta. The model was subsequently run in a 50-year hindcast mode to produce a set of outputs that were sufficient to allow the development of operational and design criteria.

UNDERSTANDING CAUSES OF DEEPWATER CURRENTS

One key component of the UGOS campaign undertaken by the University of Rhode Island (URI) and FSU has been to improve the understanding and prediction of

© SeaTrac

the TRWs that cause these strong deepwater currents. The team uses state-of-the-art monitoring systems and models building on the previous studies, particularly the work previously funded by the Deepstar Consortium.

A TRW Antenna of seabed instrumentation was deployed by URI in 2024, including seven Pressure Inverted Echo Sounders (PIESs) and four Sonardyne Origin 65 Acoustic Doppler Current Profilers (ADCPs), which integrate PIES and acoustic modem technology with a 65 kHz ADCP. The array was deployed east of the Sigsbee Escarpment to allow the TRWs to be monitored as they propagated through the mooring locations toward the escarpment where they intensify.

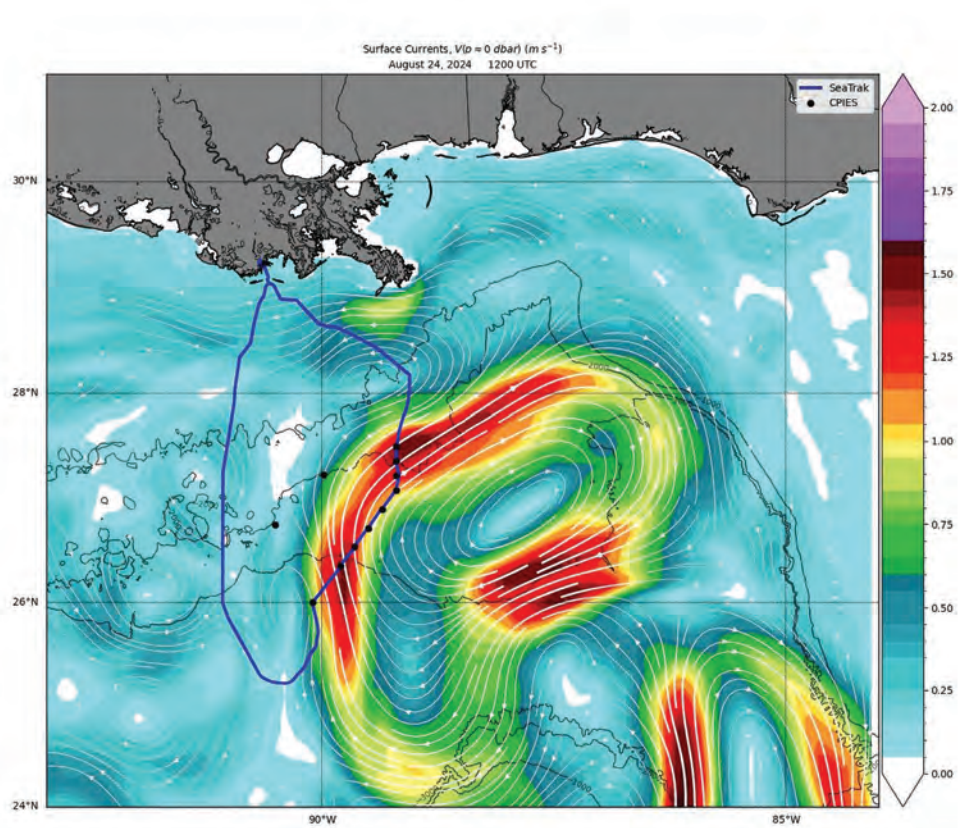
The PIES is an ocean bottom-moored instrument that measures vertical acoustic travel time (VATT) round trip from the seafloor to the sea surface. The instrument is also fitted with a pressure sensor. The VATT varies principally due to changes in the temperature profile of the water column. Applications in several large-scale ocean currents and frontal zones have demonstrated that VATT can be re-interpreted as geopotential height (dynamic height), which varies due to the Loop Current meandering and Loop Current Eddies passing over the instrument. In the Gulf of America, the vertical profiles of geopotential height, which vary with time, may be determined from VATT measurements, and data from laterally separated PIESs can be used to estimate horizontal gradients in dynamic height, from which geostrophic ocean current profiles may be calculated.

The ADCP sends out an acoustic ping along 4 beams in the Janus configuration. By monitoring the doppler shift backscattered sound in each beam, the water velocity can be determined in the axis of each beam, which can subsequently be resolved into speed and direction. Additionally, the backscattered sound is time gated which slices the water column up into discrete layers for which individual velocity readings are obtained. In the case of the Origin 65, profiles of the currents are obtained for the bottom 550m of the water column.

Historically, the only methods of recovering data from these instruments involved mobilizing a research vessel and recovering the instruments or downloading data from the instruments in-situ using a survey vessel, both of which come with a considerable cost. As part of this program working with the instrument manufacturers, Sonardyne and SeaTrac, a system was developed to allow data from the TRW Antenna to be harvested autonomously using a solar and battery powered SeaTrac Uncrewed Surface Vehicle (USV).

During August 2024, the first mission was undertaken. The figure shows the track of the SeaTrac USV, over the TRW Antenna (black dots). Despite the presence of the Loop Current with surface currents exceeding 1.5m/s (~ 3 Knots) over the array, the USV was able to successfully navigate to the instrument sites and download the data from the CPIES and Origin 65s using the Sonardyne

THE TRACK OF THE ASV (BLUE) SUPERIMPOSED ON A COLOR CONTOURED SURFACE VELOCITY FIELD (IN M/S) OF THE LOOP CURRENT.



acoustic modem telemetry system.

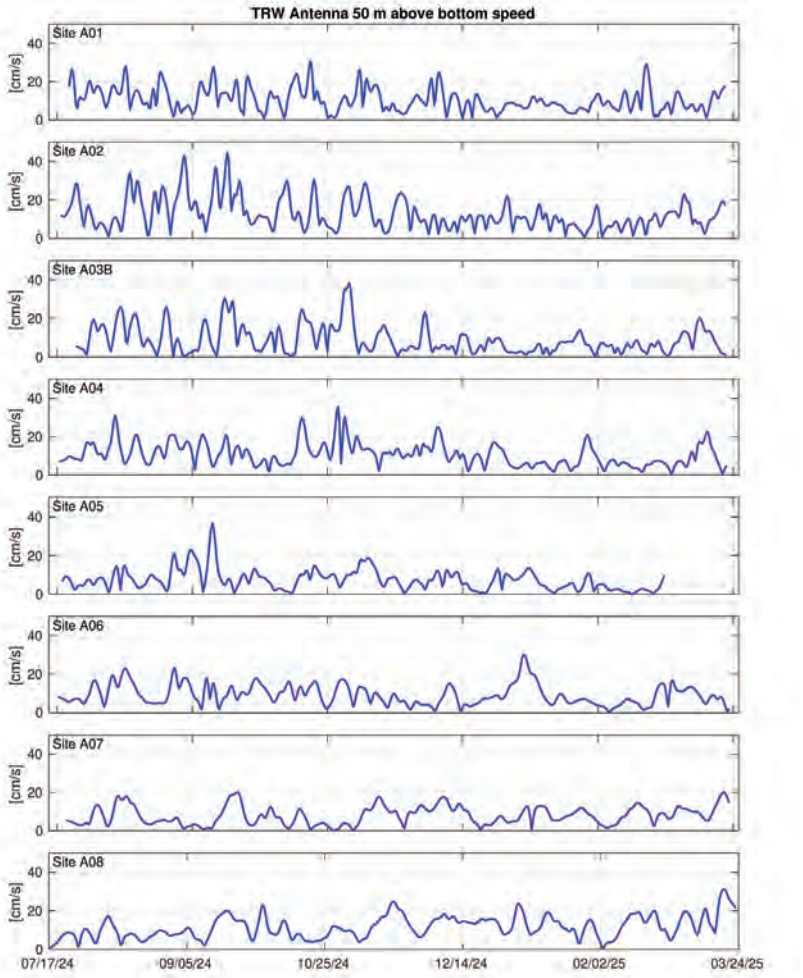
Examples of the current speed data derived from the TRW Antenna are presented below. The data show a strong correlation between the locations of the monitoring systems, illustrate that the area of generation of the TRWs varies, and that the frequency of the waves is higher when their point of origin is more Northerly. The maximum speeds observed were close to 1 knot 50m above the seabed.

NEW APPROACHES FOR IMPROVED FORECASTING

To go beyond observations, UGOS researchers at FSU and Florida A&M University, building on the prior research funded by the Deepstar Consortium, are using a high-resolution model to simulate and predict TRW behavior. The model, developed from the Navy Coastal Ocean Model with high vertical and lateral resolution, now replicates observed deep-sea currents far more accurately than previous models.

Another breakthrough is the use of Self-Organizing Maps (SOMs), a machine learning approach, to improve TRW forecasting from readily obtainable data. By analyzing satellite-derived or model analyses of sea surface height (SSH) patterns, researchers can now estimate when and where deep currents will intensify.

Throughout the research there has been routine engagement with experts from oil and gas companies to ensure the research addresses these key stakeholders' needs and provides an opportunity for the techniques developed to be transitioned to an operational system, reducing risks for offshore energy exploration and production.



TIME SERIES OF VELOCITY DATA FOR SEVEN LOCATIONS EXHIBITING TRWS

OFFSHORE ENGINEER TV

OEDIGITAL.COM

Promote a truly unique message with an Offshore Engineer TV interview.

BOOK YOUR INTERVIEW TODAY!

With an Offshore Engineer TV interview, our editorial staff will work to develop insightful Q&A to educate and enlighten viewers about your company's latest advances, technologies and products.

Interviews will be conducted at events worldwide and recorded, produced, and edited by the Offshore Engineer TV staff.

The interview will be posted on oedigital.com and promoted to our highly engaged audience. Your video will appear site-wide on the right panel with a native sponsorship placement, a branded companion banner and e-newsletter sponsorships, guaranteeing you maximum visibility.

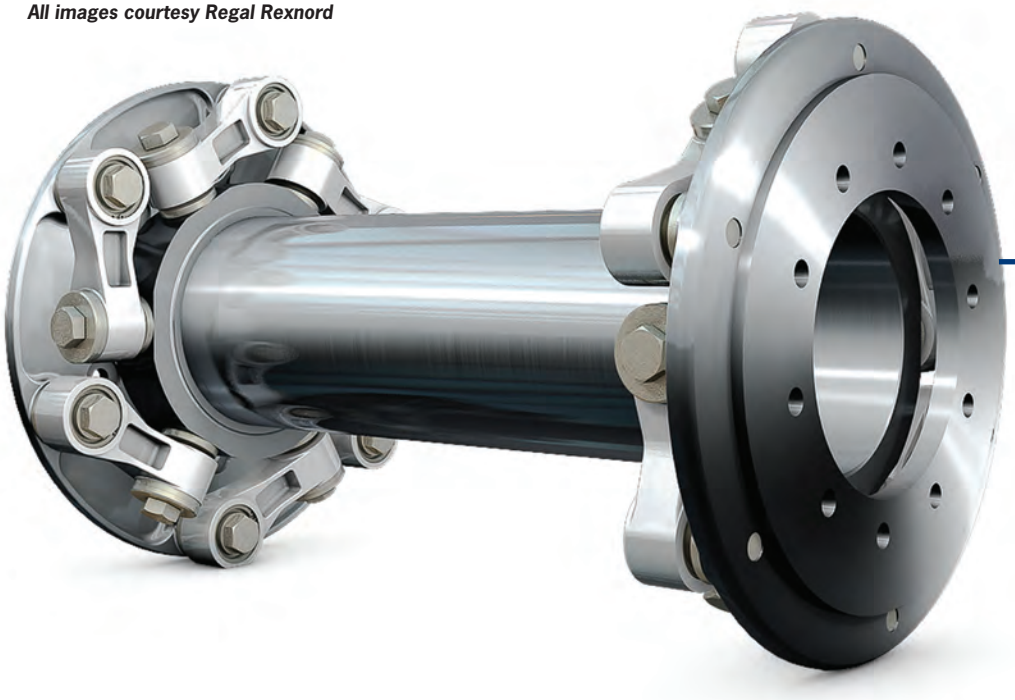
Or, if you have a video already made, OETV can promote your video by hosting on the industry's leading website, OEdigital.com.

HIGHLIGHTS

- **Insightful Q&A with the editors of the industry's leading publication.**
- **Targeted marketing to the industry's largest online audience**
- **Social media boost**
- **Includes all video production along with convenient and easy filming at the leading events around the world**

Call +1-212-477-6700 to book today!

All images courtesy Regal Rexnord



CENTALINK Carbon Fiber Driveshafts are an ideal intermediate shafting solution for many different vessel designs. Highest operational misalignment, low weight, and noise reduction are key design features.

HOW COUPLING TECHNOLOGIES ARE OPTIMIZING MARINE POWER TRANSMISSION

By Bob Lennon, Marine Industry Manager, Regal Rexnord

Marine engineering is currently undergoing a transformation where efficiency, reliability, and sustainability are under a microscope — and companies are looking to find any and all operational improvements. Within this context, flexible couplings play a humble yet pivotal role in these advancements. Oftentimes overlooked, these components enable all types of marine power transmission by quietly absorbing shock loads, damping noise, compensating for misalignment and relative motions in the powertrain, and most critically, controlling harmful torsional vibration.

As vessels evolve to meet new environmental and operational demands, flexible coupling technologies are emerging as key enablers of performance and innovation.

UNDERSTANDING THE ROLE OF A FLEXIBLE COUPLING

In its basic function, flexible couplings connect a driver to a driven unit to transmit torque while accommodating misalignments; often they are also damping torsional and lateral vibrations and noise, while protecting other drivetrain components from potential shock loads.

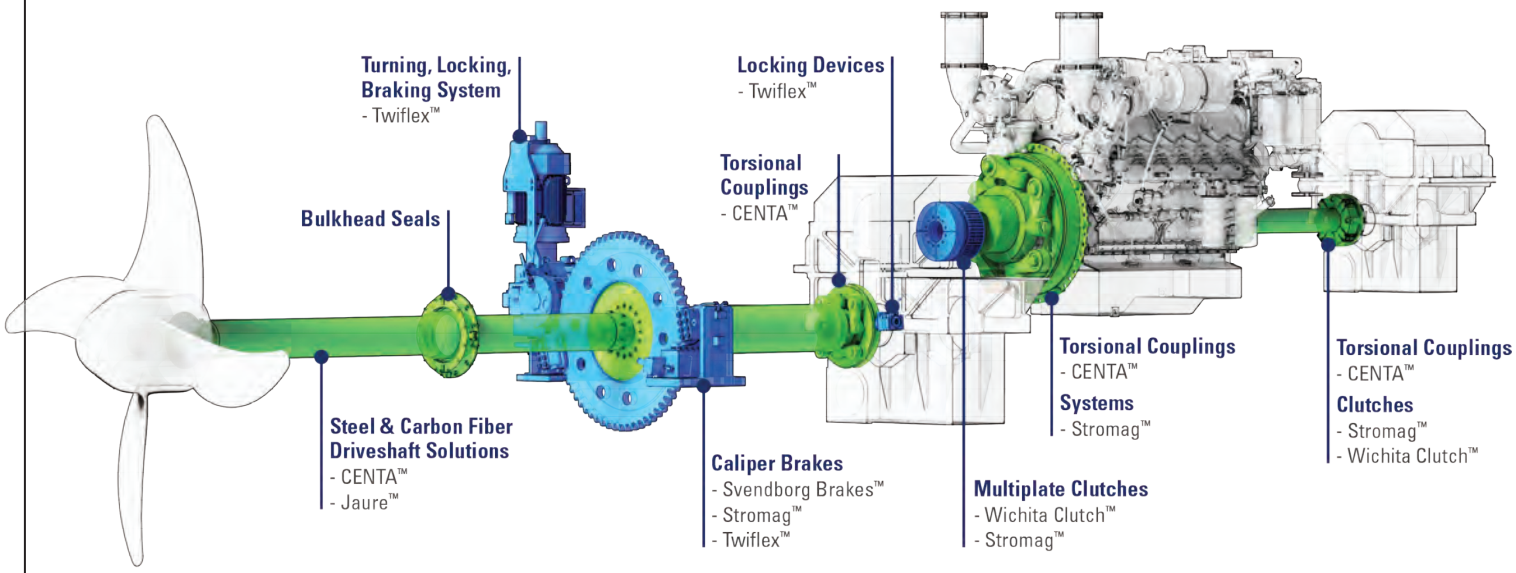
These characteristics are especially apparent in marine-based applications where systems are subjected to fluctuating loads, variable speeds, and harsh environments daily. In these circumstances, the right coupling can mean the difference between smooth sailing and costly downtime of an expensive asset.

COMMON TYPES OF MARINE COUPLINGS

Marine power transmission systems rely on a variety of flexible coupling styles designed to meet particular demands for varying operations. Metallic flexible coupling styles, like gear tooth and disc pack designs, are known for their high torque capacity and compact design. They are most often used in places where misalignment is minimal, and space may be limited (especially in diameter). A downside to gear tooth designs is that they do require periodic lubrication, where disc pack couplings are relatively maintenance free.

Elastomeric couplings, on the other hand, are better suited for higher misalignment operating conditions due to their ability to damp harmful lateral and torsional vibration from a system. They are generally low maintenance, requiring periodic inspection and planned replacement at their end-of-life expectancy (especially natural rubber-based designs). In some propulsion systems, intermediate

Flexible couplings connect a driver to a driven unit in the drivetrain to transmit toque while accommodating misalignment.



shafting of either thin wall steel or filament-wound carbon fiber shafts are used to reduce weight and noise, while simplifying structural design complexity and cost.

With such a wide variety of flexible coupling styles available, selecting the right coupling is essential to ensure optimal system performance while ensuring long operating life and safe operation of the entire drivetrain.

TORSIONAL VIBRATION AND THE GROWING CONCERN IN MODERN VESSELS

Torsional vibration is the angular acceleration and deceleration of a rotating shaft, superimposed to the steady-state rotation. This is heavily influenced by the interaction of the properties of the rotating connected masses; material stiffness, and the dynamic behavior of the entire powertrain. In marine settings, however, this phenomenon has become more pronounced with the shift from traditional low-speed internal combustion engines to medium and high-speed propulsion systems, hybrid propulsion systems, and even electric motor-based drivetrains.

With new regulations being introduced as the world trends toward sustainability, the push toward cleaner energy has introduced new sources of torsional vibration through more complex operating conditions of the drivetrain. High-pressure fuel injection methods, variation in cylinder combustion pressures from alternative fuel sources, and the integration of electric motors and generators all work to contribute to the growing complexity of the torsional dynamics of modern vessels.

Because of this, performing a detailed torsional vibration analysis (TVA) has become a critical step in the design of marine propulsion systems. A properly selected torsional coupling, confirmed by a careful TVA, can act as the well-tuned spring to help mitigate the harmful effects of torsional vibration while ensuring long-term system stability.

DESIGNING FOR EFFICIENCY AND RELIABILITY

Modern flexible coupling design is about more than simple torque transmission as engineers now consider a range of factors, including:

- Torsional stiffness influence and damping characteristics
- Thermal growth and alignment under loaded operation
- Material selection for weight optimization
- Integration with other drivetrain components, like shaft braking and locking, and condition monitoring systems

In many cases today, flexible couplings are part of a larger and more refined engineering solution that includes motors and engines, couplings and shafts, and clutches and brakes. When considering these factors into the design of a cohesive vessel propulsion system, these components can reduce the number of interfaces, minimize space requirements, and improve the overall efficiency of the drivetrain system.

MAINTENANCE BEST PRACTICES

Despite their clear importance within the drivetrain, flexible couplings are frequently overlooked during routine planned maintenance. Improved system reliability, vessel uptime, and optimal life expectancy can be achieved by:

- Performing periodic alignment checks on your drivetrain
- Verifying that hardware is properly torqued
- Scheduling inspections and maintenance in accordance with manufacturer's recommendations
- Documenting as-found conditions during routine inspections to trend wear and better prevent catastrophic failure

Regular inspection and alignment checks can significantly extend flexible coupling life expectancy and prevent unplanned downtime. In systems where torsional vibration is also a concern, onboard measurement tools and smart monitoring systems can provide real-time data to validate or refine TVA calculations and help you make proactive decisions to ensure the optimal operation and safety of your propulsion system.

THE FUTURE OF COUPLINGS AND MARINE PROPULSION

With more regulations driving the evolution of the marine industry and the shift towards stricter emissions standards, digitalization, and the shift to alternative fuels, flexible couplings will continue to remain a critical component in drivetrain safety and reliability. Their ability to integrate with new technologies and incorporate new solutions into existing drivetrains positions them to be a cornerstone of modern marine engineering for years to come. Taking the time to ensure the proper flexible coupling is being installed and maintained, along with modern data monitoring solutions can effectively position your operation to push towards a more refined and sustainable future.

THE INDUSTRY'S LARGEST NETWORK
OF PRINT, DIGITAL, AND SOCIAL MEDIA

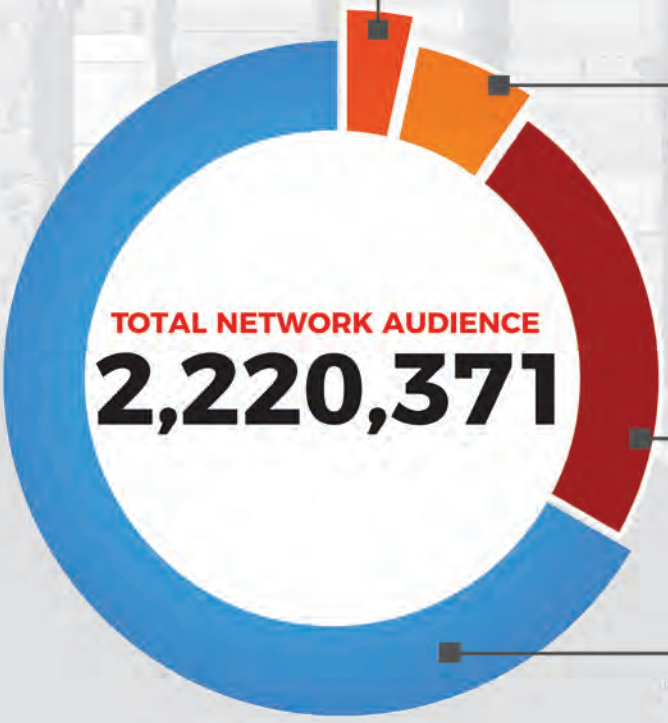
MARITIME REPORTER AND ENGINEERING NEWS

Marine News

OE OFFSHORE ENGINEER

MARITIME LOGISTICS PROFESSIONAL

MARINE TECHNOLOGY REPORTER



MAGAZINE CIRCULATION:
72,389
SUBSCRIBERS

MOBILE APPS:
80,101
DOWNLOADS

TOTAL NETWORK AUDIENCE
2,220,371

SOCIAL NETWORKS:
551,109
MEMBERS

WEB TRAFFIC:
1,516,772
PAGEVIEWS/MONTH

New Wave Media is the premier media company serving the Commercial Maritime, Shallow Draft Workboat, Underwater Science, and Offshore Energy Industries. Download our media kits and learn how we can help your company grow.

WWW.NEWWAVEMEDIA.COM

New Robotic Solution for FPSO Tank Cleaning

Ambipar and SBM Offshore announced a solution for cleaning cargo oil tanks on (FPSOs), a solution that importantly is geared to completely remove humans from entering tanks during cleaning activities.

Traditionally, cleaning these tanks involves significant health and safety risks for workers, who operate in restricted spaces under high temperatures and in contact with chemical residues. he new approach, resulting from collaboration between the two companies, will implement technology to use remotely operated robots to carry out the process in a safe way, dramatically reducing confined space risks and potential casualties.

The technology has already been successfully applied to an FPSO in offshore operation. The robot removed heavy oily sludge, while the onboard team (POB) monitored the process remotely, 24-hours a day, from a safe location outside the tank.

In addition to enhanced safety, the solution is said to reduce costs and timeframes involved in the cleaning process.

Kongsberg Maritime, Noble Corporation Join Forces for Offshore Drilling Innovation

Kongsberg Maritime and Noble Corporation have formed a strategic alliance for the co-development of advanced marine technologies for the offshore drilling sector.

The companies signed a development program framework agreement, focused on the joint development, piloting, and commercialization of innovative solutions aimed at enhancing operational efficiency, risk assessment, and sustainability in offshore operations.

The first pilot project under this agreement will be launched later in 2025 on the drillship Noble Sam Croft, setting the stage for a series of collaborative development programs.

The agreement brings together Kongsberg Maritime's marine technology portfolio with Noble's deep operational expertise and modern fleet of 21 floaters. This synergy is expected to accelerate innovation cycles and deliver user-centric solutions that unlock new value for offshore operators.

"By working closely with forward-thinking companies like Noble, we can co-create technologies that not only improve performance and safety but also support the in-


NOBLE CORPORATION


REELWELL

dustry's broader sustainability goals. Noble's progressive approach and openness to innovation make them an ideal partner for this ambitious journey," said Jouni Raatikainen, Executive Vice President Global Customer Support at Kongsberg Maritime.

COSLPioneer Semi-Sub Rig to Feature DualLink Digital Drill Pipe Tech

Well construction and production technology developer ReelWell, as part of strategic partnership with Odfjell Technology, secured multi-year contract with Vår Energi for the provision of DualLink-powered digital drill pipe technology.

As part of the agreement, Reelwell's DualLink technology will be deployed offshore on the Norwegian Continental Shelf (NCS) for the first time.

The initial contract covers operations on the COSLPioneer rig for one year, with the option of four additional one-year extensions, with options to expand the scope for all Vår Energi installations across the North Sea.

The collaboration between Reelwell and Odfjell Technology aims to advance drilling efficiency and technology to meet the industry's evolving needs.

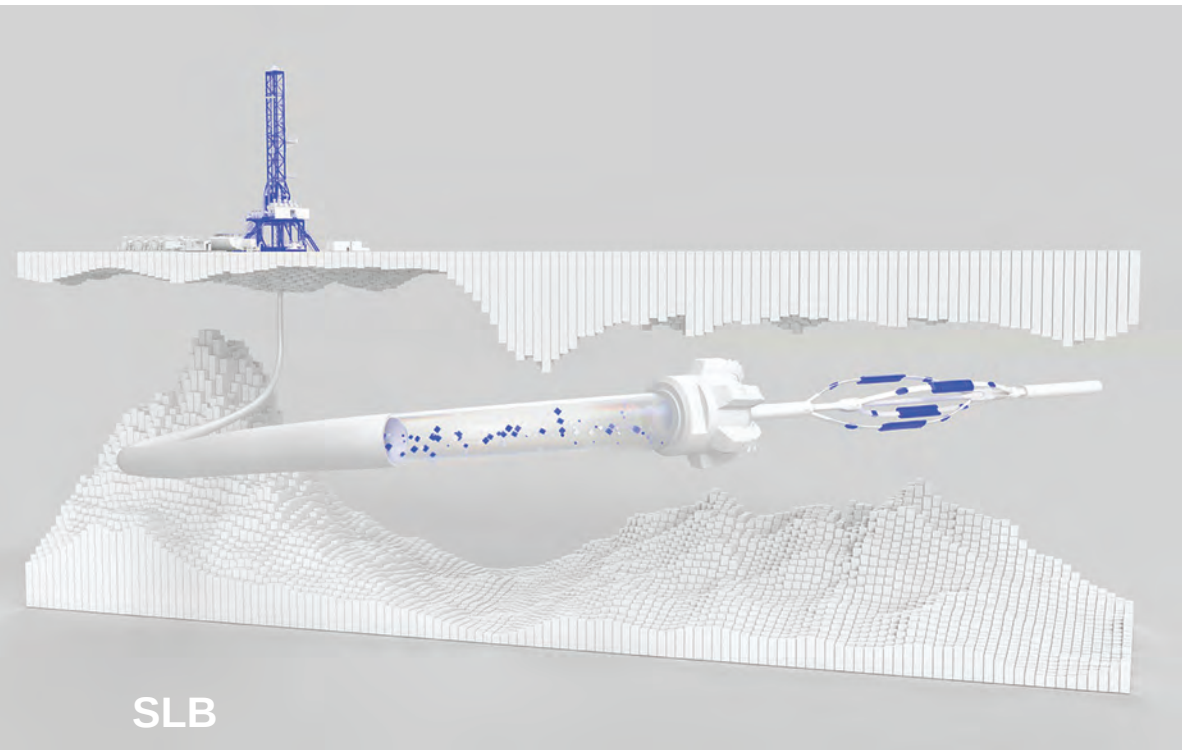
Reelwell's DualLink system integrates real-time telemetry with wellbore power, delivering enhanced operational control and ensuring uninterrupted power to downhole tools.

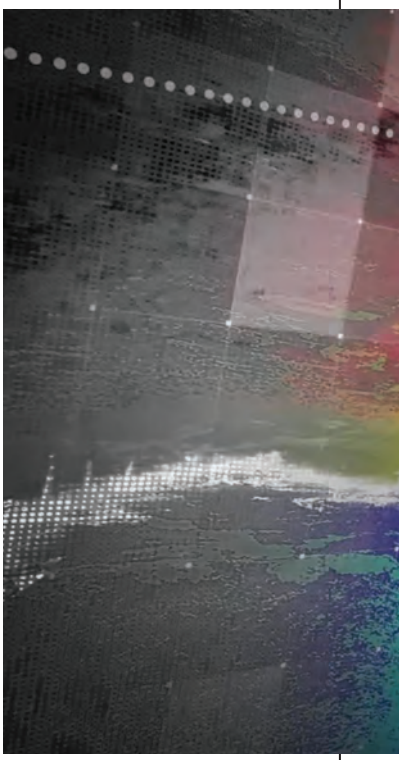
By directly powering tools in the Bottom Hole Assembly (BHA) that have traditionally been mechanically operated, the system eliminates the need for batteries and turbines, enabling instant surface control and enhanced functionality.

This advancement improves data transmission and ensures more precise, reliable operations throughout the drilling and wells process.

The combination of wellbore power and real-time telemetry allows Reelwell to oversee the collection and analysis of critical drilling data, facilitating continuous optimization of wellbore operations on the rig.

Odfjell Technology will be responsible for all the necessary drill pipe components and accessories for the project. In addition, they will oversee the many maintenance requirements, in support of Reelwell's services and the COSLPioneer rig.





SLB's OnWave Platform Set to Streamline and De-Risk Well Logging

Global energy technology company SLB has introduced the OnWave autonomous logging platform that enables more efficient and reliable acquisition of formation evaluation measurements in any well condition.

The first-of-its-kind technology autonomously acquires multiple, high-fidelity measurements downhole, without the need of a wireline unit, and wireline cable.

The OnWave platform's cable-free design takes less than half the time to deploy compared with conventional wireline platforms, while enabling drill pipe rotation and mud circulation during logging operations, to enhance well safety and minimize stuck pipe events.

Deployable in any well trajectory, without the need for an onsite SLB crew, the OnWave platform executes tasks downhole that would typically be performed manually by engineers at surface, including borehole measurement acquisition and data quality checks.

It also verifies the tool's position and functionality downhole through constant communication with surface, a capability most conventional cableless logging platforms don't have. This assures confidence in the data acquisition quality and avoids remedial logging runs.

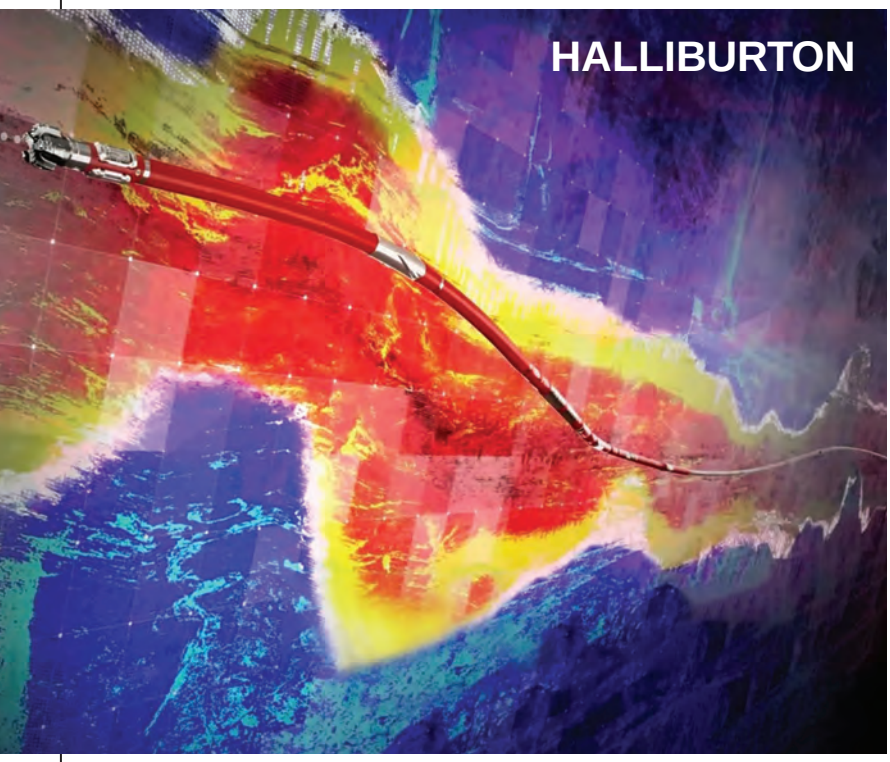
Deployed successfully across diverse basins, including in the United States and Middle East, the OnWave platform has demonstrated significant efficiency gains in complex well trajectories, SLB reported.

Halliburton's LOGIX Automated Geosteering to Optimize Well Placement

Halliburton has launched LOGIX automated geosteering, a part of the LOGIX automation and remote operations family of solutions, that optimizes geological interpretation and well placement.

LOGIX automated geosteering redefines geosteering precision by combining automation, real-time intelligence, and advanced geological modeling to optimize well placement, maximize recovery, and improve operational efficiency.

The service optimizes well placement using real-time intelligence and advanced modeling to detect geological variations along the planned well path and updates it accordingly. Early detection reduces geological uncertainty



and enables timely and accurate drilling decisions to keep the wellbore in target zones and maximize recovery.

Compatibility with LOGIX auto steer improves operational efficiency with a seamless transition between geological target changes and well path updates.

With real-time automation and intelligence, the system continuously projects ahead to detect geological variations, such as dips, and updates subsurface models.

The integration of LOGIX automated geosteering and LOGIX auto steer enables a smooth transition from well path updates to real-time drilling control to improve operational efficiency.

Expro Unveils Advanced BRUTE Tool for Deepwater Wells

Texas-based oilfield services provider Expro has launched its most advanced BRUTE high-pressure, high tensile packer system, designed to help operators work more efficiently in the extreme conditions of deepwater wells.

Engineered for the highest differential pressures in the market, this new technology gives operators the flexibility to set higher in the wellbore- saving rig time, reducing operational risk, and simplifying regulatory compliance.

As a recognized specialist in deepwater downhole solutions, Expro was commissioned by a super-major energy company for a high-spec 20k development in the Gulf of America. The inaugural use of the technology confirmed its pressure integrity and performance under extreme downhole conditions resulting in the release, and first successful deployment of the 12,850 psid-rated 12.25-inch BRUTE Armor Packer System in April 2025.

Building on the successful deployment of the 12.25-inch Packer System, Expro has also introduced a new 20/22-inch Packer System addressing historical challenges of retrievable mechanical packer systems, often constrained by internal diameter (ID) limitations, such as subsea high-pressure wellhead housings and supplemental casing adapters.

"The modular toolset provides unparalleled flexibility, making it the most adaptable solution on the market and positions Expro as the partner of choice for next-generation 20k deepwater developments," said Jeremy Angelle, Vice President of Well Construction at Expro.

EDISON CHOUEST OFFSHORE/ EQUINOR

SOV ECO Liberty

Equinor launched the Service Operations Vessel ECO Liberty earlier this summer for deployment in its New York offshore wind project, marking the culmination of a major investment in the U.S. shipbuilding industry. Louisiana First Lady Sharon Landry served as the vessel's "Godmother" during a christening ceremony on the Mississippi River at the Port of New Orleans.

ECO Liberty was built by Edison Chouest Offshore; built with American steel and including components from companies in several Gulf Coast states. "The ECO Liberty showcases the positive impact Empire Wind is having on the American economy," said Molly Morris, President of Equinor Renewables Americas. "Equinor is grateful for the opportunity to collaborate with Louisiana's world-class shipbuilding industry as we support the Trump Administration's efforts to expand U.S. vessel manufacturing. This vessel reflects how offshore wind can create durable, high-quality jobs while building out a homegrown energy supply chain."

The 262-ft. hybrid-powered ECO Liberty be homeported at New York's South Brooklyn Marine Terminal, where more than 2,000 workers have been put to work constructing a next-generation staging facility, O&M base, and control center for Empire Wind. ECO Liberty will be deployed to support ongoing marine construction in the lease area and eventually serve as the floating home for Empire Wind's workers when stationed offshore. Including ECO Liberty, seven new U.S.-flagged vessels will be added to the U.S. Jones Act compliant fleet, because of Empire Wind.

INCAT CROWTHER

Incat Crowther 60 Main Particulars

Length, oa.	196'-2"
Length, wl.	184'
Beam oa.	29'-6"
Draft	7'
Depth	14'-7"
Construction	Marine grade aluminium
Tonnage	498 GT ITC
Fuel Oil	44,909 gallons
Fresh Water	8,453 gallons
Grey Water	475 gallons
Black Water	475 gallons
Lube Oil	528 gallons
Waste Oil	528 gallons
Bilge Oil	528 gallons
Industrial personnel	60
Crew	18
Speed (Service)	28 knots
Speed (Max)	36 knots
Main Engines	4 x MTU 16V4000M63L
Power	4 x 2240kW @ 1800rpm
Propulsion	4 x Hamilton HT810 waterjets
Bow Thrusters	3 x Hydromaster 150 kw thrusters
Generators	3 x Scania DI09 (300 kW each)
Flag	Panama
Class / Survey	✠A1, Circle E, HSC Crewboat, ✠AMS, ✠DPS-2, FF Capable, SMART (INF, SHM, MHM), IDM-A, ENVIRO

Zamil Offshore 60m Fast Support Intervention Vessel

Zamil 80 is the first of three new 60-m Fast Support Intervention Vessels (FSIVs) designed by Incat Crowther for Zamil Offshore. At trial it achieved a service speed of 28 knots with a 200-ton payload, above the contracted required service speed of 25 knots, Incat Crowther said. The three new ABS-Classed, low-draft monohull FSIVs are being built by Lita Ocean (Singapore) and will assist Zamil Offshore with the safe transport of cargo, heavy maintenance equipment and personnel for Saudi Aramco's operations in the Arabian Sea. Construction on the remaining two contracted vessels is expected to be completed in 2025. The new vessels are powered by four MTU 16V4000 diesel engines coupled to

BERNHARD SCHULTE OFFSHORE

ULSTEIN GROUP

ZF gearboxes driving Hamilton HT810 waterjets.

Maneuverability of the DP2-certified vessels is enhanced by three Hydromaster tunnel bow thrusters, allowing safe docking and superior station-keeping for transfer of cargo and personnel. Two of the main engines are coupled to FFS firefighting pumps with paired 1200 cu. m./hr. water monitors and shipboard water spray protection offering FiFi-1 capability.

Three Scania 300kW diesel generators provide ship service power. The vessels' main deck offers an expansive 250 sq. m. aft cargo deck rated at 2.5 t/m2 and a climate-controlled forward cabin featuring business-class seating for 60 service personnel, as well as three bathrooms, an office, snack bar and a well-equipped medical bay.

Windea Curie

Bernhard Schulte Offshore recently received its latest Commissioning Service Operation Vessel (CSOV) from Ulstein Verft in Norway. Dubbed Windea Curie, the vessel is now being deployed for the charterer TenneT.

"Our new 'Windea Curie' is an excellent addition to our offshore fleet of now four ultra-modern vessels", says Matthias Müller, Managing Director at Bernhard Schulte Offshore (BSO). "The new ship and her subsequent sister vessel will not only add more capacity to our offshore fleet but also strengthen our competitiveness and reputation due to design features leading to improved fuel economy and flexible employment."

The new offshore vessel has a large, height-adjustable, centrally positioned walk-to-work motion compensated gangway and elevator tower for personnel and cargo transfers. Furthermore, a 3D compensated crane capable of 5-ton offshore cargo lifts is installed, enhancing operational efficiency and versatility. The optimized on-board logistics include large storage capacities and stepless approach to the offshore installations.

Windea Curie measures 89.6 x 19.2 m, and offers up to 90 cabins with windows for charterers' offshore personnel. In total, there are 111 cabins providing comfortable living conditions for up to 132 individuals. The ship is equipped with hybrid battery propulsion and prepared for methanol fuel to enable low-carbon operations. It is flexible and attractive for employment within areas such as O&M (Operation and Maintenance) or construction support, especially in challenging weather and sea conditions.

Megamas Contracts for Cable-laying Vessel Design

Megamas Resources announced a ship design contract with Norway-based Ulstein Design & Solutions AS to start the engineering phase on a fiber-optic cable-laying vessel (CLV) planned to be built at the Lloyd Werft Bremerhaven GmbH.

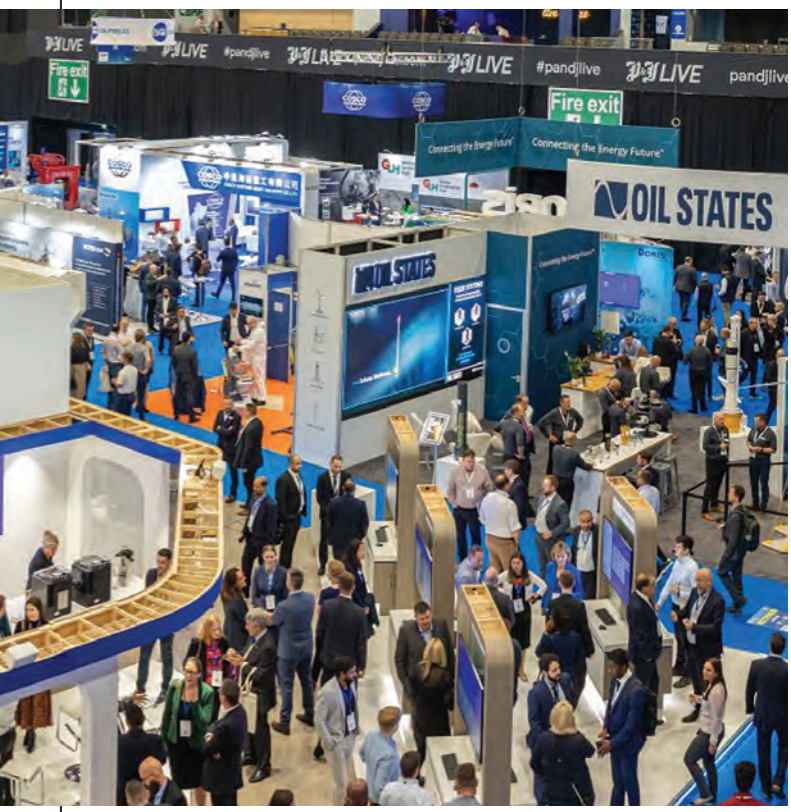
The ULSTEIN SX228 has a deadweight of 8,200 tons and a cable capacity of 5,500 tons. Measuring 121.7 x 23-m, the vessel has been optimized for fiber-optic cable laying and is also prepared for future power cable operations. This includes an underdeck carousel integrated into the cable tanks.

Equipped with two firing lines and all necessary cable handling equipment within an enclosed working area, the vessel includes an ROV hangar for the cable trencher, a 50-ton A-frame, and a bollard pull capacity of up to 120 tons for subsea ploughing.

OIL, WIND, HYDROGEN AND AI

TO CONVERGE IN ABERDEEN AT SPE OFFSHORE EUROPE 2025

The offshore energy sector's spotlight will return to Scotland in September as SPE Offshore Europe 2025 prepares to host more than 800 exhibiting companies under one roof.



The event, taking place from 2 to 5 September at the P&J Live venue in Aberdeen, is poised to deliver a dynamic blend of exhibitions, technical seminars, and live thought-leader sessions.

Set against Aberdeen's status as Europe's energy capital, P&J Live, located just minutes from the airport, will open its doors daily at 09:30 am. Sessions will run until 5 pm on the first three days, closing at 2 pm on Friday.

Conference and Speakers

The agenda, unified under the theme 'Unlocking Europe's Potential in Offshore Energy', features three complementary streams, including Keynote and Technical programs, and TIDE (Talent Investment & Diversity Events), spotlighting the next-gen workforce.

Across the four days of SPE Offshore Europe 2025, the Keynote Program will deliver strategic insights from some of the offshore sector's most influential figures. Sessions will explore the energy transition's commercial and technical realities, investment strategies for both oil and gas and renewables, the role of hydrogen and offshore wind in decarbonization, and the integration of digital technologies such as artificial intelligence (AI) to improve efficiency and safety.

David Whitehouse, Offshore Energies UK (OEUK) CEO, will chair the conference, with keynote speakers including Louise Kingham, SVP Europe and Head of Country at BP; Andreas Bjelland Eriksen, Norway's Minister for Climate and the Environment; Simon Roddy, Senior Vice President - UK Upstream, Shell; Camilla Salthe, SVP UK Upstream at Equinor; and Claire Mack, CEO of Scottish Renewables.

As for Technical Program, the sessions will feature a number of presentations and panel discussions, tackling both established and emerging themes in offshore energy, covering topics ranging from late-life field management, digital drilling and wells, carbon capture and storage (CCS) projects, as well as transition technologies and digital operations.

Exhibitors: A Global, Cross-Sector Gathering

With over800 exhibitors spanning the entire offshore energy ecosystem, the event promises unmatched breadth and collaboration showcased across three halls. Attendees can explore tech from oil and gas, digital innovation, safety, operations, and energy transition, grouped into themed zones for easy navigation.

The exhibition will include Energy Transition Theatre that will showcase latest presentations from operators, developers and technology companies, covering all aspects of energy transition. It is sponsored by SLB, ABB, Cradle Point (a part of Ericsson), Innomotics (a Siemens company), Net Zero Technology Centre, and TotalEnergies.

The Offshore Wind Theatre will serve as a forum for discussions on the role of offshore wind within the energy sector, and will showcase new projects and take a deep dive into topics ranging from floating offshore wind, supply chain integration, operations & maintenance.

In addition to other activities and pavilions, the event will host the Hydrogen Hub set to showcase 'all things hydrogen', Innovative Technology / Digital Zone reserved for the new and upcoming in the industry, and the North Sea Futures theatre that will focus on the development and adoption of future-facing technologies, with AI, digitalization, offshore wind and robotics taking the center stage.

With industry-leading speakers, a strong technical program, and feature zones covering everything 'old and new' in the offshore energy sector, the SPE Offshore Europe 2025 will once again become a focal point for collaboration, innovation, and strategic dialogue between the industry majors at a time when the offshore sector is balancing energy security with the urgency of decarbonization.

BOOTH #2J28

VAN BEEST®

Royal Van Beest is the leading manufacturer of premium quality lifting, lashing and mooring fittings. We bring everything together by offering Green Pin®, Irizar Forge, Slingsintt and Heuer Hebetechnik brands under one roof.

A Green Pin® is the centerpiece of rigging—designed for maximum safety and reliability. Our shackles, hooks, and links are essential in professional lifting, lashing, towing, and mooring across industries such as aquaculture, offshore, oil and gas, logistics, construction, armed forces, and mining. With over 1,000 distributors in more than 100 countries, we ensure rapid global delivery. We take no risks in production, distribution, or delivery.

Irizar Forge specializes in forged heavy-duty crane hooks, blocks, and connectors, offering both standardized components and fully custom solutions for the most demanding lifting challenges.

Visit us at booth **#2J28** to discover the new Green Pin® ROV Pro Shank Hook and the Irizar Forge Smart Con Link Kenter Joining Shackle.

Atlantic Canada Pavilion

Booth #2E20

Atlantic Canada is Canada's eastern offshore oil and gas region with immense clean growth potential. Its vast untapped renewable energy resources include substantial hydro, wind, and tidal potential, as well as clean fuels opportunities in hydrogen and natural gas, which are helping pave the way towards energy transition. Brands featured: Pro-Dive Marine Services, Port of Argentia, Energy NL, Advantage St John's, Crosbie, Altomaxx, Pennecon Limited, NOSO, East Coast Tubulars, Avara Solutions, A. Harvey, C-NLOER, Pedal & Shift

Balmoral Comtec Ltd

Booth #3D30

BALMORAL

We have more than 40 years' of global experience, unrivalled technical expertise, a vast project track record of providing evidence-based buoyancy, protection and insulation product solutions with an open and collaborative approach to stakeholder engagement.

DNV

Booth #2L60

DNV provides assurance to the entire energy value chain through its advisory, monitoring, verification, and certification services. As the world's leading resource of independent energy experts and technical advisors, the assurance provider helps industries and governments to navigate the many complex, interrelated transitions taking place globally and regionally, in the energy industry. DNV is committed to realizing the goals of the Paris Agreement, and supports customers to transition faster to a deeply decarbonized energy system.

Offshore Engineer

Booth #2C45

Since 1975, Offshore Engineer has been the leading source of in-depth analysis, insightful editorial, and the latest technology developments shaping the offshore energy industry. Offshore Engineer reaches a global

BOOTH #1P50

Acce//eron

We help the world move further, more efficiently and sustainably. As a global leader in turbocharging, fuel injection, and digital solutions for heavy-duty applications, we enable marine and energy operators to improve efficiency, lower emissions, and progress toward a net zero future. We build on this with proactive maintenance and component upgrades that extend equipment life and reduce lifecycle costs while helping businesses future-proof and accelerate their decarbonization journeys.

For more than a century, we have been a trusted supplier to engine manufacturers and operators worldwide. Headquartered in Baden, Switzerland, we employ 3,000 people and operate more than 100 service stations in 50 countries, providing expert service and consultation around the clock. With dedicated research and development and 180,000 turbochargers in operation globally, we deliver technologies that help customers achieve ambitious decarbonization goals.

audience, who rely on it for industry reporting and forecasts, project updates, case studies, and more.

PPG

Booth #3A32

PPG Protective & Marine Coatings is a world leader in protective and marine coatings. Our global capabilities and respected protective coatings brands enable us to provide our customers with exceptional products, performance and service. Our products protect a wide range of assets for the most demanding markets and environments, incl. Marine, Offshore, Civil Infrastructure, Petrochemical, Power, Mining and Renewable Energy. PPG has the scale and resources to deliver outstanding support with well-established operations in over 70 countries.

Prevco

Booth #1X37

At Prevco, we're not just another subsea engineering company; we're your go-to experts for all things submerged! Our cutting edge submersible pressure vessels and instrumentation housings are designed with reliability and innovation at their core. Imagine leak-proof submarine pressure housings that can be air filled, pressure balanced (oil filled) or pressure compensated - perfect for keeping your critical equipment safe and sound underwater! Whether you're looking to house batteries, hydrophones, sonars or cameras, our robust underwater enclosures have got you covered.

Roxtec Ltd.

Booth #1V32

We are delighted to once again be showcasing our sealing solutions and services in the EIC pavilion at SPE Offshore Europe in Aberdeen. Meet Roxtec offshore specialists to not only learn more about our certified cable and pipe transit systems, but find out about our inspection services and online transit register to help protect and maintain your marine and offshore units. Our offshore wind specialists will also be on hand to discuss how we can help with the energy transition.

Sonomatic

Booth #2K88

Sonomatic delivers advanced NDT solutions through specialised inspection techniques, robotics, and integrity engineering. With in-house R&D and robotics through E2i as well as support from Sonomatic RAIS, AUAV, and Geo Oceans, we provide an integrated, multi-technology service offering across industries—combining expertise in NDT, drones, ROVs, and data-driven asset integrity.

Teledyne FLIR

Booth #2L84

Teledyne FLIR develops advanced sensing technologies that enhance

perception and awareness. Our solutions include thermal and visible-light imaging, video analytics, diagnostics, and threat detection. FLIR OGI cameras detect gases like methane, SF_6, and hydrocarbons safely and efficiently. Additionally, our industry-leading Gas & Flame Detection solutions from Teledyne Gas & Flame Detection offer a range of portable and fixed instruments for early detection of combustible/toxic gases and flames across industrial environments.

Teledyne Gas and Flame Detection

Booth #2L84

Teledyne Gas and Flame Detection provides robust, certified fixed, portable, and wireless solutions for gas and flame detection in critical oil, gas, and chemical environments. Each site presents unique risks—our expert teams design tailored systems to ensure safety, reliability, and performance. With a complete portfolio and global support, Teledyne helps protect people, assets, and operations in the most demanding conditions.

U-Boat Worx Components

Booth #1Q48

At U-Boat Worx Components, cutting-edge innovation meets uncompromising precision. With over 20 years of pioneering experience, our submersibles are the result of world-class Dutch engineering, advanced materials, and meticulous craftsmanship. Every detail... from hydrodynamics to electrical systems... is designed and tested to meet the highest safety and performance standards in the industry.

Wood

Booth #3D45

Wood is a global leader in consulting and engineering, delivering critical solutions across energy and materials markets. We provide consulting, projects and operations solutions in 60 countries, employing around 35,000 people.

Sonobot 5

uncrewed surface vehicle

Follow our updates

Evo Logics

evologics.com/newsletter

Gastech

EXHIBITION & CONFERENCE
9-12 SEPTEMBER 2025
FIERA MILANO - MILAN

Climatetech & AI | Hydrogen

Powering a sustainable energy future

Join the **world's largest event** for natural gas, LNG, hydrogen, climate technologies and AI.

50,000 Attendees	1,000 Exhibitors	1,000 Speakers	7,000 Delegates	150 Countries represented

BOOK YOUR STAND

Join 1,000 exhibitors and connect directly with global procurement teams from EPCs and major energy companies driving LNG and energy infrastructure projects worldwide.

gastechevent.com @gastechevent #Gastech

Organised by: dmg::events

ABS

Safely Transforming Tank Inspection

The ABS Modified Tank Entry Program (MTEP) redefines tank inspection for FPSOs and FSRUs. MTEP leverages advanced risk assessment and monitoring to deliver more effective, data-driven inspections. It also cuts downtime and reduces costs by extending entry intervals up to 10 years. This proactive approach enhances asset integrity and elevates safety, setting a new benchmark for smarter, safer offshore operations.

Review the MTEP by clicking the button below or contact our team at **globaloffshore@eagle.org**.

Explore More