

CASE STUDY:

PKR OFFSHORE INTRODUCES ASIAN-BUILT BATTERY HYBRID CSOV WITH CATERPILLAR MARINE SOLUTIONS

OVERVIEW

Vessel Owner/Operator Lowers Costs and Greenhouse Gas Emissions

CUSTOMER

PKR Offshore

LOCATION

Taiwan

CAT DEALER

Capital Machinery Limited (CML)

PRODUCT

Cat® C32 and 3512E

INDUSTRY

Offshore Wind

Collaboration Expands Fleet and Supports Climate-Related Objectives

Supporting Offshore Wind Farm Growth

PKR Offshore (PKRO), part of the renowned Singapore-based Marco Polo Marine Ltd. group, has grown into one of the leading offshore vessel owner/operators in Taiwan in just seven years. PKRO has quickly established a diverse fleet of specialized ships to support development, construction, commissioning, operations and maintenance needs for major Taiwanese offshore wind farms.

The vessel owner/operator is committed to expanding its operations beyond Taiwan's borders to serve offshore wind farms in Japan and Korea with support vessels capable of reducing greenhouse gas (GHG) emissions while ensuring reliability. This is essential for the offshore wind companies PKRO serves as there's a critical shortage of commissioning service operations vessels (CSOVs). Offshore wind farms in the region not only desire the availability of more CSOVs but also that those ships support each wind farm operator's climate-related objectives.

When PKRO sought to build its first battery hybrid CSOV, along with additional crew transfer vessels (CTVs), it consulted Caterpillar Marine to help plan – and power – the innovative new ships.

Hybrid Power Solutions Create a Competitive Advantage

Caterpillar Marine worked closely with PKRO to ensure that the new CSOV, the MP Wind Archer, would possess the power required to support comfortable accommodations and safe transfer systems while affording the flexibility to provide new services such as emergency port support, onboard inspection, SOS distress calls and maintenance. To support such varied uses, the Cat® 3512E was selected to provide auxiliary power as part of a battery hybrid system. As PKRO is required to report how its operations support Taiwan's decarbonization initiatives when pursuing new contracts, the hybrid power solution provides the vessel owner/operator a powerful competitive advantage. The 3512E is engineered to promote greater fuel efficiency and reduced NOx emissions¹ – and it's methanol-ready to allow PKRO to leverage the engine's methanol dual fuel capabilities in the future.²

In addition to the MP Wind Archer, PKRO also purchased three new CTVs to satisfy the demands of regional offshore wind farms. The new CTVs were each equipped with two Cat C32 engines to deliver dependable power and fuel efficiency. Designed to meet European Union (EU) Stage V standards, the C32 technology supports PKRO's climate-related and operational objectives.



In support of PKRO's local content drive – a priority for the local government – the Taiwan-based Cat dealer Capital Machinery Limited (CML) provides critical support to help ensure the new CSOV and CTVs enjoy maximum uptime. CML strategically plans PKRO's service intervals in advance to minimize operational disruption. Key parts are stocked at CML's local facility and delivered within just a few hours, reducing downtime. CML's experienced technicians are poised to arrive on-site within a couple hours should urgent needs arise which optimizes fleet availability.

"Our collaboration with Caterpillar Marine and CML has been integral to the success of our regional expansion plans," commented Kelvin Teo, Managing Director of PKR Offshore. "We're well-positioned to serve the needs of offshore wind farms across Taiwan, Japan, Korea and the upcoming new markets in the Asia-Pacific region, in a manner that helps us reduce costs and GHG emissions."



"WORKING WITH CATERPILLAR MARINE AND CML HAS PROVEN VERY VALUABLE TO OUR TEAM. WE CAN CONFIDENTLY EXPAND OUR GEOGRAPHIC FOOTPRINT KNOWING THAT WE'RE BACKED BY THE TECHNICAL EXPERTISE AND SUPPORT OF CATERPILLAR MARINE AND THE ENTIRE CAT DEALER NETWORK – BOTH ARE EVERYWHERE WE WISH TO BE."


– KELVIN TEO,
MANAGING DIRECTOR
OF PKR OFFSHORE

A Fleet Expansion Poised to Meet Tomorrow's Requirements Today

The MP Wind Archer entered the water in early 2025. According to PKRO, the CSOV's hybrid propulsion system reduces carbon emissions by 15 - 20%. This enables PKRO to decrease GHG emissions while also reducing fuel consumption and costs.

The three C32-equipped CTVs have been operating progressively since April 2025. The C32's design provides PKRO the flexibility to incorporate hybrid power options and lower carbon-intensity fuels at the vessel owner/operator's discretion. The new CTVs are anticipated to significantly reduce fuel costs compared to PKRO's older CTVs.

The new CSOV and CTVs empower PKRO to address unmet needs in the offshore wind industry and expand the fleet's capabilities. In the coming years, PKRO plans to add more new CTVs and CSOVs to ensure PKRO keeps pace with the sector's demands and hopes to be able to work closely with key partners like Caterpillar Marine and CML for the fleet.



"Working with Caterpillar Marine and CML has proven very valuable to our team," added Teo. "We can confidently expand our geographic footprint knowing that we're backed by the technical expertise and support of Caterpillar Marine and the entire Cat dealer network – both are everywhere we wish to be."



¹ Cat® 3512E Commercial Propulsion Engines. https://www.cat.com/en_US/products/new/power-systems/marine-power-systems/commercial-propulsion-engines/1000031003.html.

² Caterpillar Marine To Support Select Cat 3500E-Series Engines With Dual Fuel Methanol. September 2022. https://www.cat.com/en_US/news/engine-press-releases/caterpillar-marine-to-support-select-cat-3500-E-series-engines-with-dual-fuel-methanol.html#:~:text=Caterpillar%20Marine%20to%20Support%20Select,Dual%20Fuel%20Methanol%20%7C%20Cat%20%7C%20Caterpillar.