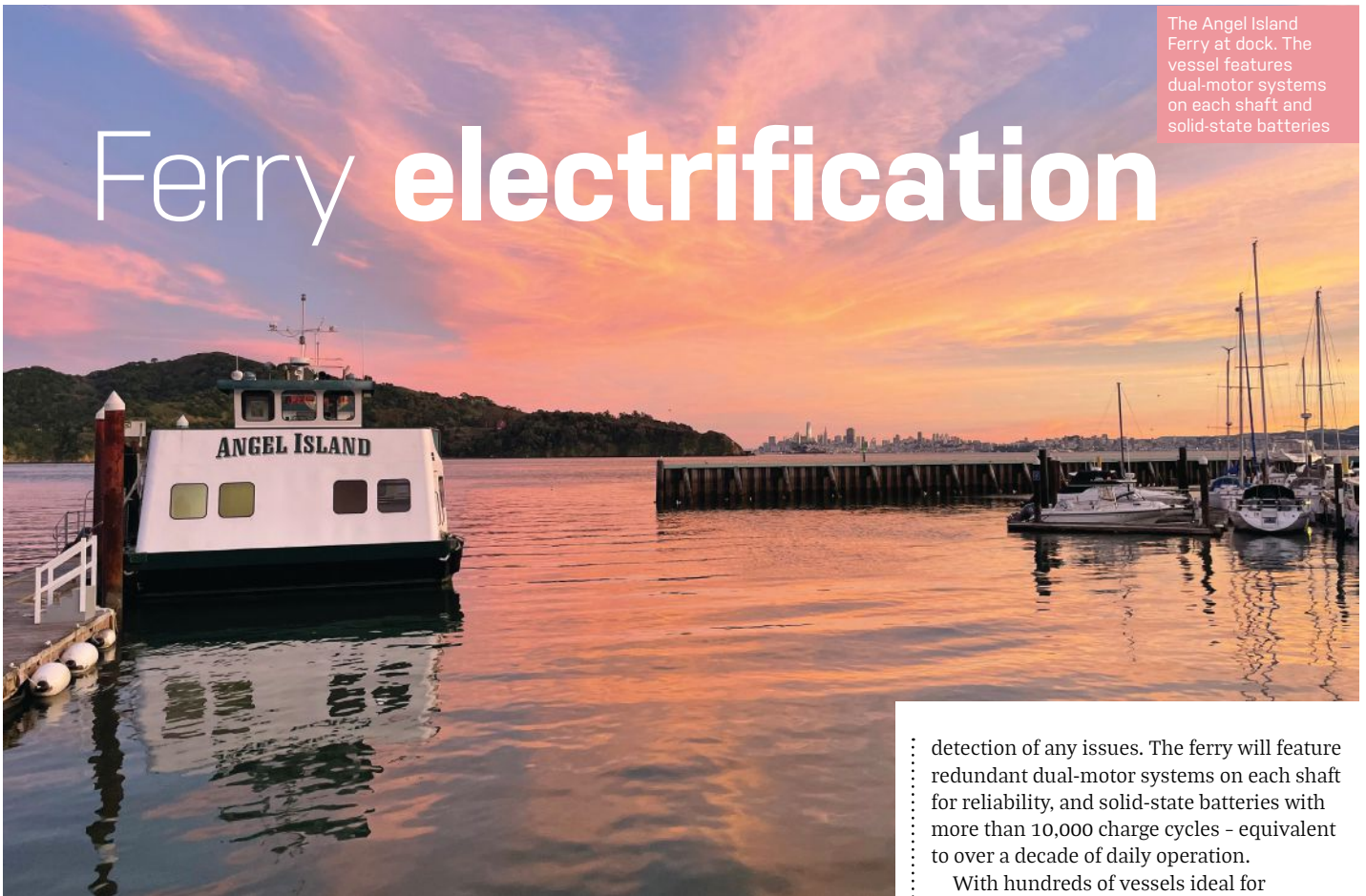


The Angel Island Ferry at dock. The vessel features dual-motor systems on each shaft and solid-state batteries

Ferry electrification



Understanding the challenges and opportunities of vessel electrification in California

WORDS: MARCO OTTIKER

Four years ago, Marco Ottiker, COO and co-owner of EPTechnologies, received a call from Graham Balch, CEO of ZeroMar. Balch was on the lookout for an agile, forward-thinking company to help realize his vision: to transition as many US vessels as possible away from outdated, fuel-intensive engines toward cleaner, modern alternatives.

It quickly became apparent that Ottiker and Balch shared a common philosophy on how electrification should be approached. Both were committed not only to creating systems that meet customers' specific needs and provide effective carbon reduction, but also to offering practical, streamlined solutions rather than over-engineered or prohibitively complex systems.

After many discussions and detailed planning sessions, this collaboration blossomed into a pioneering partnership. ZeroMar brought an in-depth understanding of the US market and the nuances of regulatory compliance, particularly in California, while

EPTechnologies contributed its expertise in advanced, reliable propulsion systems. Together, they are working to further development in marine electrification.

Meeting regulatory standards while customizing solutions to each client's operational needs is no easy feat. Balancing cost-efficiency with performance requires careful navigation, and achieving optimized, simplified systems takes time. Yet the team is now poised to execute 8 to 10 projects in California alone, aiming for completion before the 2028 Olympic Games.

Leading by example

One of the companies' flagship projects is the conversion of the Angel Island Tiburon Ferry - a 400-passenger vessel operating short routes. This shift will save approximately 5,000 gallons (19,000 liters) of diesel annually, reducing CO₂ emissions by around 50 metric tons each year. Maintenance will be minimal, and remote datalogging will enable quick

detection of any issues. The ferry will feature redundant dual-motor systems on each shaft for reliability, and solid-state batteries with more than 10,000 charge cycles - equivalent to over a decade of daily operation.

With hundreds of vessels ideal for electrification, the impact of this initiative is substantial. The short- and medium-range ferry market presents a significant opportunity to reduce operating costs and environmental impact. However, not every ferry is a viable candidate for electrification. ZeroMar and EPTechnologies prioritize ecological and financial sustainability and are transparent with clients about whether an electric retrofit makes sense. They've declined projects where battery weight would compromise vessel efficiency, underscoring their commitment to realistic, balanced solutions.

For marine electrification to succeed, it's crucial that projects are both feasible and demonstrably beneficial. Through this partnership, ZeroMar and EPTechnologies are working together to set a new standard, ensuring that every project undertaken aligns with the long-term goals of cost-efficiency, environmental responsibility and industry viability. +

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