

CASE STUDY

COMPANY:



APPLICATION:

Marine

RELION BATTERY USED:

RB50

OVERVIEW:

Sub Sea Systems, a global marine tourism company, transitions its solar-plus-storage powered boats from lead acid batteries to longer-lasting, lighter and more reliable lithium energy storage solutions.

RESULTS:

- › Reduced battery replacement and rental operator costs
- › Reduced total battery weight on each boat by 76%
- › Increased boat runtime by 25% and thereby additional revenue for the company



HIGH PERFORMANCE & LIGHTWEIGHT FOR MOBILE APPLICATIONS

Reliable Lithium Energy Storage Solutions Provide Savings for Solar Boat Business

SITUATION

While ecotourism provides substantial benefits for the environment, it also provides both significant cost savings as well as additional earnings for marine tourism businesses globally. More and more marine tourism companies have begun renting out solar-plus-battery powered recreational boats over the past decade in order to reduce engine maintenance, improve fuel economy, and increase boat runtime. However, these solar powered boats have often relied upon heavy, shorter lasting, frequently replaced lead-acid batteries, which directly impact customer experience, overall boat runtime and thereby net profit.

PROJECT

Sub Sea Systems (SSS), a thirty-five year old world leader in innovative products and underwater experiences for the marine tourism industry, was determined to reduce costs and maximize revenue from their popular SolarCat catamarans, which had historically been powered by solar panels and lead-acid AGM batteries. SSS sought an energy storage solution for its SolarCats that was lightweight, to ensure maximum speed and the most enjoyable customer experience. SSS also needed an energy storage system that could be discharged more than fifty percent, unlike the lead-acid batteries its SolarCats were using, to enable the boats to run for a longer period of time and thereby minimize downtime for recharging.



This robust & reliable lithium battery system is high performing, long-lasting & able to be deeply discharged, yet is extremely lightweight. These are critical factors for our solar powered catamarans that are at sea for hours on end.

Keenan Mayfield,
Director of Operations at
Sub Sea Systems



Another constraint SSS was facing with its SolarCats' lead-acid battery systems was the continual replacement costs - both in terms of the actual cost of the replacement batteries as well as the labor to remove and then reinstall the batteries. While initially less expensive at the outset, SSS was having to replace the lead-acid battery systems for every SolarCat just about every couple of years. Therefore, in the same time that a single, superior lithium battery system would last, SSS was having to replace multiple sets of lead-acid batteries. Due to how often SSS was having to replace the batteries, it required that every rental location site reserve space for and maintain a substantial amount of replacement batteries. Given the scale of SSS's business, with 100+ SolarCats deployed in over thirty locations, this issue represented a significant and continual cost to the business.

SOLUTION

After investing many hours into researching a new, higher performing, lighter, and more reliable energy storage system to pair with the solar arrays on their SolarCats, SSS opted for two RELiON 12V RB50s per boat. "We decided to use RELiON energy storage solutions due to their proven performance in a small form factor, extremely competitive pricing, excellent customer service and long life expectancy," explained Keenan Mayfield, Director of Operations at SSS.

Each SolarCat solar-plus-storage system consists of two RELiON 12V RB50s, two 100W solar panels - one panel for charging each battery, and a ProMariner ProSport 20 charge controller. This system powers two 12V motors at the back of the pontoon.

RESULTS

Since outfitting all of its SolarCats with RELiON lithium batteries, SSS has been able to reduce total battery weight on each boat by 76%, which has directly resulted in greater boat efficiency and higher customer satisfaction. Additionally, the RELiON batteries take up about half of the space of the prior lead acid battery banks, allowing for more storage space for passengers.

Due to the RELiON energy storage system's much deeper allowable depth of discharge, SSS is now able to keep the SolarCats on the water much longer, while reducing charge time when docked. In total, this has amounted to an average 25% increase in runtime and thereby additional revenue for SSS. Also as a result of greater runtime, SSS has been able to reduce the overhead cost for rental operators who previously had to constantly pull boats back in to recharge them on land.

SSS also no longer has to replace SolarCat battery systems every one to two years. Based on SSS's usage, it is anticipated that each RELiON system will last well over eight years, which is in stark contrast to the lead-acid batteries SSS previously used that had a nearly ten times shorter lifespan.