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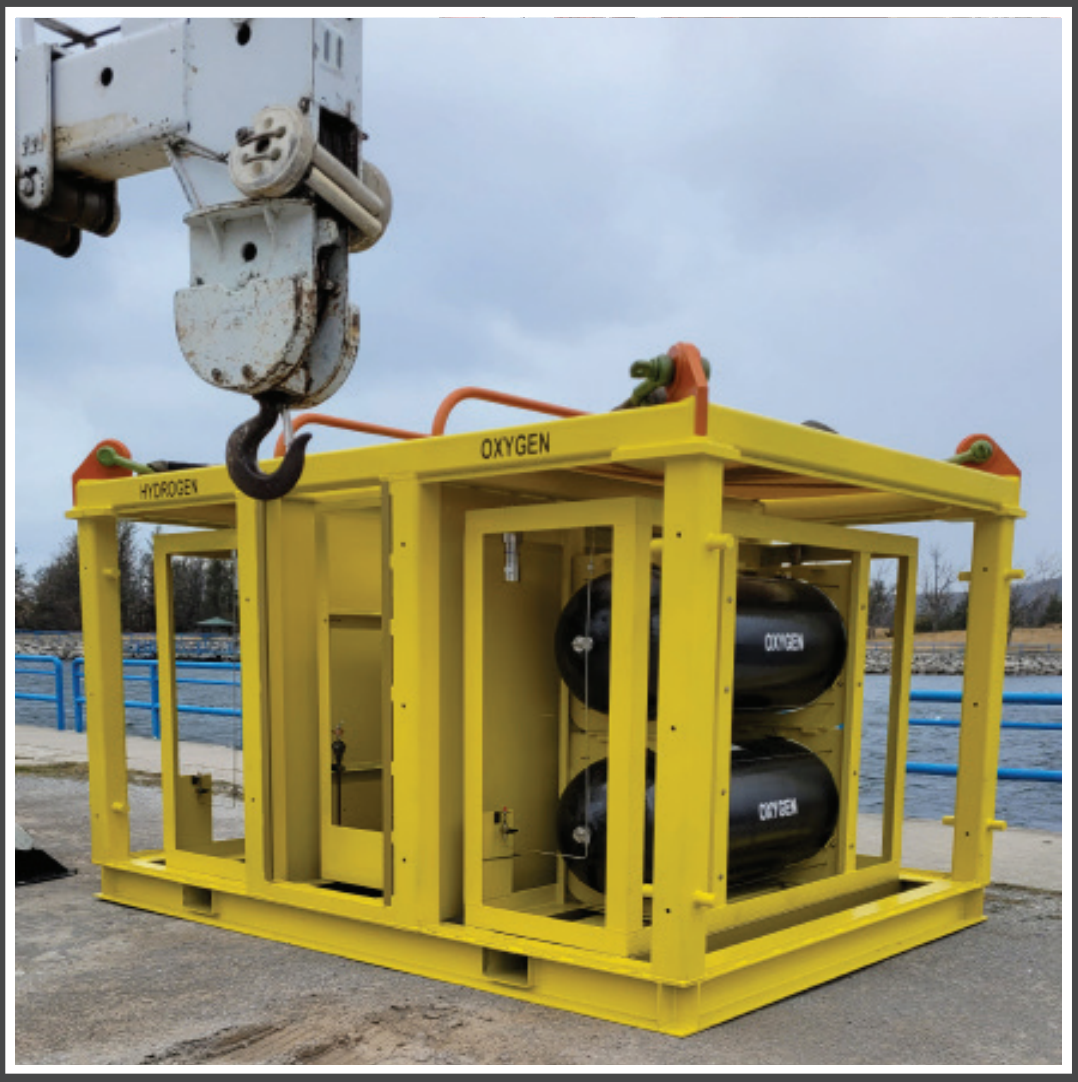
UNDERWATER TECHNOLOGY



UNDERWATER POWER
FLOATING WIND
INSTALLATION

ISSUE 6 2022

SUT Society for Underwater Technology
MTS marine technology society

SUBSEA POWER

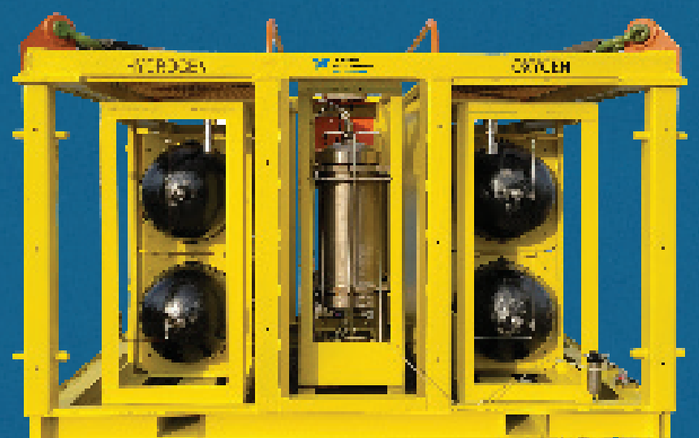
SUBSEA SUPERCHARGER

Over the last few decades, both commercial and government operations have increased the number of systems and amount of infrastructure deployed at considerable ocean depths. From oil and gas, port and harbour security, to advanced military deployments, needs are mounting for unmanned, self-sustaining ecosystems for vehicles and platforms.

In response to this demand, Teledyne Energy Systems (TESI) developed the Subsea Supercharger (S2C) fuel cell based power delivery system. This energy storage and delivery solution enables untethered power to subsea ocean infrastructure, autonomous underwater vehicle (AUV) recharging stations, and resident remotely operated vehicles (ROVs).

Current subsea infrastructure power solutions require a long cable connected to either a surface ship, platform, or land-based station (i.e., tethered power). Alternatively, batteries are used to provide untethered subsea power. For example, batteries may be stored on board a subsea vehicle to provide power, but then are frequently brought to the surface to recharge due to the limited energy density of the system storage.

Furthermore, if these battery systems are rechargeable, even when brought to the surface, they require access to charging power. Another limitation of battery power is scalability for applications requiring large energy storage. Using oxygen and hydrogen fuel cells and submersible, reusable gas storage flasks, the S2C can easily scale to large scale energy storage applications. This will enable future subsea platforms, AUVs, and ROVs to operate independently of any other infrastructure or resources thus providing operators with unparalleled flexibly, efficiency and savings.



In early December 2022, TESI demonstrated what is believed to be the first time an AUV was charged subsea using a hydrogen fuel cell. As part of a Phase II demonstration for NOAA Great Lakes Environmental Research Laboratory, TESI partnered with Hibbard Inshore to demonstrate the ability to repeatedly recharge an AUV while performing its mission to collect scientific data under ice.

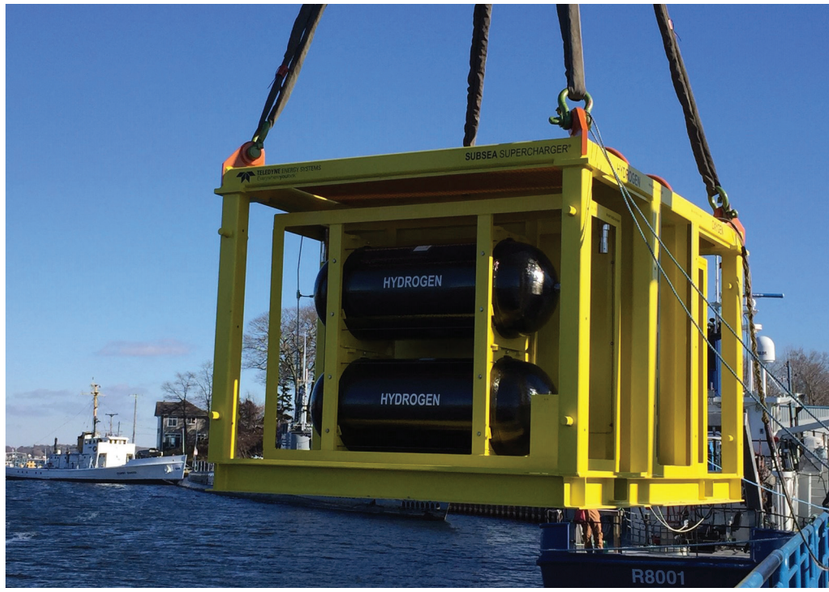
The tests involved a SAAB Sabertooth AUV which made use of Hibbard Inshore's electric charging dock on the bed of Lake Michigan.

The Sabertooth was able to successfully dock, charge, and undock multiple times demonstrating the ability to extend the underwater mission duration. Currently, NOAA's ability to conduct science in The Great Lakes during winter is limited because iced over conditions keep surface vessels from leaving the dock.

Using the Subsea Supercharger in conjunction with the Saab Sabertooth and Hibbard Inshore's charging dock will enable the AUV to conduct extended missions under ice," stated Dave Malak, Vice President, Hibbard Inshore. "We believe that extended duration AUV missions can unlock new data to advance science."

The S2C system is modular and can be kitted for varying power needs and configurations.

"This system test fully demonstrates the capability to provide persistent and sustained undersea power and is an important industry milestone enabling extended underwater missions without need of surface support." stated Dwight Warnock, TESI Vice President and General Manager.



The S2C base unit is rated for a depth of 1000m and configured for 400kWh but is scalable to meet project specific requirements.

Above and below: The Subsea Supercharger (S2C) fuel cell undergoing testing